March 2001

Attachment 1

Number: 00-05-006

State of Washington Department of Ecology (Ecology)
Nuclear Waste Program
1315 W. 4th Avenue
Kennewick, WA 99336-6018

The permittee is authorized to operate the air emission units identified in this Air Operating Permit Number 00-05-006 and all insignificant emission units not specifically identified in this permit.

Dated at Richland, Washington this 15th day of March, 2001.

Reviewed by:

Oliver Wang, PE
Title V Permit Professional Engineer Reviewer
State of Washington Department of Ecology

3/16/2001
Date

Approved by:

Michael Wilson
Program Manager, Nuclear Waste Program
State of Washington Department of Ecology

3/22/01
Date

This page intentionally left blank.

CONTENTS

1.0 EMISSION STANDARDS AND LIMITATIONS 5
1.1 INSIGNIFICANT EMISSION UNITS 5
1.2 EMISSION UNITS AND ACTIVITIES SUBJECT TO MONITORING, REPORTING, RECORDKEEPING, AND COMPLIANCE CERTIFICATION 5
1.3 GENERAL STANDARDS FOR MAXIMUM EMISSIONS 10
1.4 EMISSION UNIT SPECIFIC APPLICABLE REQUIREMENTS 15

2.0 COMPLIANCE AND PERIODIC MONITORING PROVISIONS 84
2.1 Visible emission surveys 84
2.2 General Standards Complaint Investigations 85
2.3 Measures to Control Fugitive Emissions and Fugitive Dust 85
2.4 RACT 85
2.5 RECORDKEEPING 85
2.6 STEAM GENERATING UNITS SOURCE TESTS 86
2.7 SO_2 EMISSIONS COMPLIANCE 86
2.8 VISIBLE EMISSIONS ENFORCEABILITY 87
2.9 SO_2 ENFORCEABILITY 87

3.0 RECORDKEEPING 88
3.1 EMISSION CALCULATIONS 89
3.1.1 MODEL 1 Description: Compliance with 1000 ppm SO_2 @7% O_2 Internal Combustion Engines >500 hp SO_2 Emission Calculations 89
3.1.2 MODEL 2 Nitrogen Oxides Emission Calculations 94
3.1.3 MODEL 4 Volatile Organic Compounds Emission Calculations 95
3.1.4 MODEL 5 Ammonia Emission Calculations 97
3.1.5 MODEL 6 Emissions from 305 B Gas Cylinder Management Process (GCMP) 98
3.1.6 MODEL 7A – Emissions from Use of Chemical Inventory 99
3.1.7 MODEL 7B – Air Concentrations for Comparison to ASILs 99
3.1.8 MODEL 7C – Emission Calculations for LERF/ETF 100
3.1.9 MODEL 10A Rotary Mode Core Sampling: Emission Estimates for Ammonia 101
3.1.10 MODEL 10B Rotary Mode Core Sampling: Emission Estimates for Class A and Class B TAPs 102
3.1.11 MODEL 10C Description: VOC Emissions on a Daily Average 103

TABLES

Table 1.1. List of Significant Emission Units. 5
Table 1.2. General Standards For Maximum Emissions. 11
Table 1.3. Emission Limits and Periodic Monitoring Requirements for Steam Generating Units..... 15
Table 1.4. Internal Combustion Engines: 500 Horsepower and Greater. 21
Table 1.5. Processes and Emission Units Exceeding Insignificant Emission Unit Threshold, Excluding Combustion Processes. 22
Table 1.6. Emission Limits and Periodic Monitoring Requirements for Emission Units with NOC Approval Conditions. 23
Table 1.7. Miscellaneous Emission Units. 82

1.0 EMISSION STANDARDS AND LIMITATIONS

Emission standards and limitations are discussed in the following sections.

1.1 INSIGNIFICANT EMISSION UNITS

Compliance with the cited applicable requirements in Table 1.2 (Section 1.3) is required. However, the periodic monitoring, testing, recordkeeping, or reporting requirements listed in Table 1.2 are not required. Also the compliance certification is not required for insignificant emission units.

All emission units not identified in Table 1.1 that are subject to 40 CFR 61, Subpart H (Attachment 2) have been determined to represent insignificant sources of nonradioactive regulated air pollutants. For these emission units no additional monitoring, reporting, or recordkeeping is necessary to determine compliance with the requirements in Table 1.2. All requirements identified in Attachment 2 for this category of emission unit continue to apply, as well as the requirement to annually certify compliance to any applicable requirements identified in Attachment 2.

These emission units need not be listed individually in the annual compliance certification unless there were observed, documented, or known instances of non-compliance during the certification period.
[WAC 173-401-530(2)(b) and (2)(c)]

1.2 EMISSION UNITS AND ACTIVITIES SUBJECT TO MONITORING, REPORTING, RECORDKEEPING, AND COMPLIANCE CERTIFICATION

Table 1.1 identifies those emission units on the Hanford Site subject to the requirement to annually certify compliance with the terms and conditions of this Permit. The emission units listed in Table 1.1 are subject to the generally applicable requirements in Table 1.2 (Section 1.3); unless emission unit-specific requirements for these emission units are found in Tables 1.3, 1.4, 1.5, 1.6, or 1.7.

Table 1.1. List of Significant Emission Units.

Emission unit	Requirements	Description
200CC, Boiler 1	Table 1.3	80 HP fuel oil boiler, not subject to WAC 173-400-115, Subpart Dc.
225-B, Boiler 1	Table 1.3	150 HP fuel oil boiler, not subject to WAC 173-400-115, Subpart Dc.
275-E, Boiler 1	Table 1.3	80 HP fuel oil boiler, not subject to WAC 173-400-115, Subpart Dc.
272-W, Boiler 1	Table 1.3	250 HP fuel oil boiler, not subject to WAC 173-400-115, Subpart Dc.

Table 1.1. List of Significant Emission Units.

Emission unit	Requirements	Description
222-S, Boilers 1 & 2	Table 1.3	200 HP fuel oil boilers, not subject to WAC 173-400-115, Subpart Dc.
283-W, Boiler 1	Table 1.3	200 HP fuel oil boiler, not subject to WAC 173-400-115, Subpart Dc.
283-E, Boiler 1	Table 1.3	200 HP fuel oil boiler, not subject to WAC 173-400-115, Subpart Dc.
234-5Z, Boilers 1, 2, & 3	Table 1.3	350 HP fuel oil boilers, subject to WAC 173-400-115, Subpart Dc.
242-A, Boiler 1	Table 1.3	200 HP fuel oil boiler, not subject to WAC 173-400-115, Subpart Dc.
242-A, Boilers 2 & 3	Table 1.3	700 HP fuel oil boilers, subject to WAC 173-400-115, Subpart Dc.
305, Boiler 1	Table 1.3	40 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
306-E, Boiler 1	Table 1.3	150 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
318, Boiler 1	Table 1.3	30 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
320, Boilers 1 & 2	Table 1.3	100 HP natural gas boilers, not subject to WAC 173-400-115, Subpart Dc.
323, Boiler 1	Table 1.3	50 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
324, Boilers 1 & 2	Table 1.3	300 HP natural gas boilers, subject to WAC 173-400-115, Subpart Dc.
325, Boilers 1 & 2	Table 1.3	125 HP natural gas boilers, not subject to WAC 173-400-115, Subpart Dc.
326, Boilers 1 & 2	Table 1.3	100 HP natural gas boilers, not subject to WAC 173-400-115, Subpart Dc.
327, Boiler 1	Table 1.3	200 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
328, Boiler 1	Table 1.3	30 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
329, Boilers 1, 2, 3 & 4	Table 1.3	50 HP natural gas boilers, not subject to WAC 173-400-115, Subpart Dc.
331, Boilers 1 & 2	Table 1.3	300 HP natural gas boilers, subject to WAC 173-400-115, Subpart Dc.
337-B, Boilers 1 & 2	Table 1.3	60 HP natural gas boilers, not subject to WAC 173-400-115, Subpart Dc.
382-A-D, Boiler 1	Table 1.3	200 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
3705, Boiler 1	Table 1.3	15 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
3706, Boiler 1	Table 1.3	80 HP natural gas boilers, not subject to WAC 173-400-115, Subpart Dc.

Table 1.1. List of Significant Emission Units.

Emission unit	Requirements	Description
3709A, Boiler 1	Table 1.3	15 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
3720 Boiler	Table 1.3	125 HP natural gas boiler, not subject to WAC 173-400-115, Subpart Dc.
300 EP-3020-07-S, 300 EP-3020-08-S, 300 EP-3020-09-S	Table 1.6	5mmBTU/hr natural gas (fuel oil backup) boilers, not subject to WAC 173-400-115, Subpart Dc.
200E E-225BC 001	Table 1.4	500 HP or greater internal combustion engine.
200E E-225BG 001	Table 1.4	500 HP or greater internal combustion engine.
200E E-282ED 001, Engine E	Table 1.6	500 HP or greater internal combustion engine.
200W E-282WD 001, Engine W	Table 1.6	500 HP or greater internal combustion engine.
300 E-900 001	Table 1.4	500 HP or greater internal combustion engine.
300 E-900 002	Table 1.4	500 HP or greater internal combustion engine.
300 E-900 003	Table 1.4	500 HP or greater internal combustion engine.
300 E-1000 001	Table 1.4	500 HP or greater internal combustion engine.
300 E-1450 001	Table 1.4	500 HP or greater internal combustion engine.
300 EP-3020-12-S	Table 1.4 & 1.6	500 HP or greater internal combustion engine.
300 EP-3020-13-S	Table 1.4 &1.6	500 HP or greater internal combustion engine.
300 Emergency Diesel Generators, 325, 3709A, and 331	Table 1.6	Subject to NOC approval. 325 and 331 are greater than 500 HP internal combustion engines.
400 E-4250 001, G-3	Table 1.4	500 HP or greater internal combustion engine.
600 E WSCF 001	Table 1.4	500 HP or greater internal combustion engine.
200E P-244CR 001 (CR Vault)	Table 1.5	Exceeds insignificant emission unit threshold(s).
200W P-296SY 001 (Exhauster)	Table 1.5	Exceeds insignificant emission unit threshold(s).
200W P-296P028 001 (Backup Exhauster for 200W P-296SY 001)	Table 1.5	Exceeds insignificant emission unit threshold(s).
200W P-296SX 001 (Exhauster)	Table 1.5	Exceeds insignificant emission unit threshold(s).
200E P-296AN 001 (Tank Exhauster)	Table 1.5	Exceeds insignificant emission unit threshold(s).
200E P-296AP 001 (Tank Exhauster)	Table 1.5	Exceeds insignificant emission unit threshold(s).
200E P-296AW 001 (Tank Exhauster)	Table 1.5	Exceeds insignificant emission unit threshold(s).
200E P-296A042 001 (Tank Exhauster)	Table 1.5	Exceeds insignificant emission unit threshold(s).
Cold Vacuum Drying	Table 1.6	NOC approval for Cold Vacuum Drying - phase II.

Table 1.1. List of Significant Emission Units.

Emission unit	Requirements	Description
N-1724K 001	Table 1.6	NOC approval for 1724K Building Maintenance Shop.
200 Area Emissions	Table 1.6	NOC for installation and operation of a waste retrieval system in double-shell tanks.
P-296P033-001& P-296P034-001	Table 1.6	NOC approval for Rotary Mode Core Sampling (RMCS) Systems 3 & 4 and Modification to 2, Revision 1.
P-241U107-001 P-241S102-001 P-241S112-001	Table 1.6	NOC approval for construction and operation of the 241-U-107, 241-S-102, 241-S-112 waste retrieval system.
W-PORTEX 020	Table 1.6	NOC approval for Portable Exhauster Use On Single-Shell (SST) Tanks During Saltwell Pumping, Revision 2.
C-106 Sluicing	Table 1.6	NOC approval for 241-C-106 Tank Sluicing, phase II.
P-2025E ETF	Table 1.6	NOC approval for 200 Area Effluent Treatment Facility (ETF).
P-296A042-001	Table 1.6	NOC approval for 241-AZ-101 Tank Waste Retrieval and 241-AY/241-AZ Tank Farms ventilation upgrades, Project W-151 and project W-030.
P-WTP-001	Table 1.6	NOC approval for Waste Treatment and Immobilization Plant.
Concrete Batch Plant	Table 1.6	NOC approval for Waste Treatment and Immobilization Plant.
P-2706T-001	Table 1.6	NOC approval for T Plant Complex.
P-291Z001-001	Table 1.6	NOC approval for Plutonium Finishing Plant.
J-CWC 001	Table 1.6	NOC approval for storage of vented waste containers at Central Waste Complex.
P-WRAP1 001	Table 1.6	NOC approval for Waste Receiving and Processing Facility (WRAP1).
S-296S021-001	Table 1.6	NOC approval for 222-S lab hot cell expansion.
EP-3020-01-S through EP-3020-12-S	Table 1.6	NOC approval for construction and operation of Environmental Molecular Sciences Laboratory (EMSL) emission points.
EP-305B-02-V	Table 1.6	NOC approval for 305-B Building gas cylinder management process.
EP-325-01-S	Table 1.6	NOC approval for 325 Building Hazardous Waste Treatment Unit (HWTU).
EP-329-01-S	Table 1.6	NOC approval for Chemical Sciences Laboratory, 329 Building modification and ventilation upgrades.
EP-331-01-V	Table 1.6	NOC approval for Life Sciences Laboratory I (Building 331) modifications.
P-340NTEX-001	Table 1.6	NOC approval for 340-A Building tank solids removal.

Table 1.1. List of Significant Emission Units.

Emission unit	Requirements	Description
Hanford Site Asbestos Landfill	Table 1.7	Miscellaneous emission unit.
600 G-6290 (600 Area Gasoline Distribution)	Table 1.7	Miscellaneous emission unit.
283-W Water Treatment Plant (Chlorine Tank)	Table 1.7	Miscellaneous emission unit.

1.3 GENERAL STANDARDS FOR MAXIMUM EMISSIONS

The following general regulatory requirements, emission limits, or work practice standards apply to all emission units [refer to definition of emission units in WAC 173-401-200(11)] on the Hanford Site.

The general standards in Table 1.2 are the applicable requirement, emission limit, or work practice standard unless replaced by another requirement in Tables 1.3, 1.4, 1.5, 1.6 or 1.7.

Table 1.2. General Standards For Maximum Emissions.

Requirement citation (WAC or Order Citation)	Regulatory requirement, emission limit, or work practice standard	State-Only enforceable	Periodic monitoring	Periodic monitoring provisions	Test method[1]
WAC 173-400-040(1)	20% Opacity. Prohibits visible emissions exceeding 20% opacity for more than 3 minutes in any 1 hour of an air contaminant from any emissions unit or within a reasonable distance of the emission unit except for scheduled soot blowing/grate cleaning or due to documented water.	N (Section 2.8)	Visible emission surveys	2.1	EPA Method 9.
WAC 173-400-040(2)	Fallout. Prohibits emissions of particulate matter from any source to be deposited beyond the facility boundaries in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material was deposited.	Y	Recordkeeping of complaint investigation.	2.2	
WAC 173-400-040(3)(a)	Fugitive emissions. The Permittee shall take reasonable precautions to prevent the release of air contaminants from any emissions unit engaging in materials handling, construction, demolition, or any other operation that is a source of fugitive emissions.	N	Pre-job planning to determine reasonable control measures[2].	2.3	

Table 1.2. General Standards For Maximum Emissions.

Requirement citation (WAC or Order Citation)	Regulatory requirement, emission limit, or work practice standard	State-Only enforceable	Periodic monitoring	Periodic monitoring provisions	Test method[1]
WAC 173-400-040(4)	Odor. Requires any facility causing an odor that unreasonably interferes with another person's use and enjoyment of their property to use recognized good practices and procedures to reduce odors to a reasonable minimum.	Y	Recordkeeping of complaint investigations.	2.2	
WAC 173-400-040(5)	Emissions detrimental to persons or property. Prohibits emissions of any air contaminant from any source that is detrimental to the health, safety, or welfare of any person, or causes damage to property or business	N	Recordkeeping of complaint investigation.	2.2	
WAC 173-400-040(6)	1,000 ppm SO_2 @ 7% O_2 on a dry basis. Prohibits emission of a gas containing sulfur dioxide from any emissions unit in excess of 1,000 ppm of a dry basis, corrected to 7% oxygen for combustion sources, and based on the average of any period of 60 consecutive minutes.	N (Section 2.9)	For fossil-fuel combustion units: recordkeeping or certification.	2.7	EPA Method 6 or 6C of 40 CFR 60, App. A.

Table 1.2. General Standards For Maximum Emissions.

Requirement citation (WAC or Order Citation)	Regulatory requirement, emission limit, or work practice standard	State-Only enforceable	Periodic monitoring	Periodic monitoring provisions	Test method[1]
WAC 173-400-040(7)	Concealment and masking. Prohibits the installation or use of any device or use of any means that conceals or masks an emission of an air contaminant that would otherwise violate any provision of WAC 173-400.	N	Recordkeeping of complaint investigation.	2.2	
WAC 173-400-040(8)(a)	Fugitive dust. Requires reasonable precautions be taken to prevent fugitive dust from becoming airborne and to minimize dust generation.	N	Pre-job planning to determine reasonable control measures[2].	2.3	
WAC 173-400-040 1st	Reasonably available control technology (RACT).	N	Permit terms considered RACT[3].	2.4	

[1] The test methods identified in this table are used as compliance verification tools. A frequency is not applicable unless specified in the table.

[2] These requirements do not apply to emissions that pass through a stack, chimney, vent, or other functionally equivalent opening.

[3] Applies only to regulatory order approval conditions shown in the following tables and not to the General Standards.

This page intentionally left blank.

1.4 EMISSION UNIT SPECIFIC APPLICABLE REQUIREMENTS

The following sections contain emission unit specific requirements for steam generating units (Table 1.3), internal combustion units (Table 1.4), emission units exceeding insignificant emission unit thresholds (Table 1.5), individual NOC approval orders (Table 1.6), and miscellaneous emission units (Table 1.7).

1.4.1 Process: Fossil Fuel Fired Steam Generating Units.

Table 1.3. Emission Limits and Periodic Monitoring Requirements for Steam Generating Units.

Boiler Annex		>5mmBTU/hr input	Fuel		Boiler Annex		>5mmBTU/hr input	Fuel
200CC	Boiler 1	No	fuel oil		325	Boiler 1	Yes	natural gas
225-B	Boiler 1	Yes	fuel oil			Boiler 2	Yes	natural gas
275-E	Boiler 1	No	fuel oil		326	Boiler 1	No	natural gas
272-W	Boiler 1	Yes	fuel oil			Boiler 2	No	natural gas
222-S	Boiler 1	Yes	fuel oil		327	Boiler 1	Yes	natural gas
	Boiler 2	Yes	fuel oil		328	Boiler 1	No	natural gas
283-W	Boiler 1	Yes	fuel oil		329	Boiler 1	No	natural gas
283-E	Boiler 1	Yes	fuel oil			Boiler 2	No	natural gas
234-5Z	Boiler 1	Yes	fuel oil			Boiler 3	No	natural gas
	Boiler 2	Yes	fuel oil			Boiler 4	No	natural gas
	Boiler 3	Yes	fuel oil		331	Boiler 1	Yes	natural gas
242-A	Boiler 1	Yes	fuel oil			Boiler 2	Yes	natural gas
	Boiler 2	Yes	fuel oil		337-B	Boiler 1	No	natural gas
	Boiler 3	Yes	fuel oil			Boiler 2	No	natural gas
305	Boiler 1	No	natural gas		382-A-D	Boiler 1	Yes	natural gas
306-E	Boiler 1	Yes	natural gas		3705	Boiler 1	No	natural gas
318	Boiler 1	No	natural gas		3706	Boiler 1	No	natural gas
320	Boiler 1	No	natural gas		3709A	Boiler 1	No	natural gas
	Boiler 2	No	natural gas		3720	Boiler 1	Yes	natural gas
323	Boiler 1	No	natural gas					
324	Boiler 1	Yes	natural gas					
	Boiler 2	Yes	natural gas					

Table 1.3. Emission Limits and Periodic Monitoring Requirements for Steam Generating Units (cont).

Description	Requirement citation (WAC or Order Citation)	Regulatory requirement, emission limit or work practice standard	State-Only enforceable	Periodic monitoring	Test method[1]
Steam generating units <5mmBTU/hr listed previously	WAC 173-400-040(1)	20% Opacity. Prohibits visible emissions exceeding 20% opacity for more than 3 minutes in any 1 hour of an air contaminant from any emissions unit or within a reasonable distance of the emission unit except for scheduled soot blowing/grate cleaning or due to documented water.	N (Section 2.8)	Fuel-oil fired boilers Method: Visible emission surveys, Section 2.1,Tier 1 Frequency: At least once per calendar year quarter Natural gas-fired boilers Method: Visible emission surveys, Section 2.1, Tier 2 Frequency: At least once per quarter	Method: EPA 9 Frequency: not applicable.
Fossil-fuel fired steam generating units less than 5 mmBTU/hr	WAC 173-400-040(6)	1,000 ppm SO_2 @ 7% O_2 on a dry basis. Prohibits emission of a gas containing sulfur dioxide from any emissions unit in excess of 1000 ppm of a dry basis, corrected to 7% oxygen for combustion sources, and based on the average of any period of 60 consecutive minutes.	N (Section 2.9)	Fuel-oil fired units: Method: Section 2.7, Tier 1. Frequency: At least annually.	EPA Method 6 or 6C of 40 CFR 60, App. A.
	WAC 173-400-050(1) & (3)	Particulate matter #0.23 gram per dry cubic meter at standard conditions (0.1 grain/dscf) adjusted for volumes, corrected to 7% O_2 .	N	Recordkeeping. Section 2.5	EPA Method 5 or approved procedure in "*Source Test Manual - Procedures for Compliance Testing*", 7/12/90.

Table 1.3. Emission Limits and Periodic Monitoring Requirements for Steam Generating Units (cont).

Description	Requirement citation (WAC or Order Citation)	Regulatory requirement, emission limit or work practice standard	State-Only enforceable	Periodic monitoring	Test method[1]
Standards of performance for new sources. Small industrial-commercial-institutional steam generating units 234-5Z Boiler 1 234-5Z Boiler 2 234-5Z Boiler 3 242-A Boiler 2 242-A Boiler 3	40 CFR 60 Subpart Dc WAC 173-400-115	#0.5 weight percent sulfur fuel (NOC 97NM-138 condition listed below).	N	Fuel supplier certifications and monthly records reported annually. Refer to Recordkeeping. Section 2.5	
No. 2 Distillate fuel-oil fired steam generating units greater than or equal to 5 mmBTU/hr.	97NM-138	0.05% sulfur distillate fuel oil will be used in the 200 Areas; natural gas will be used in the 300 Area.	N	Recordkeeping. Section 2.5	
		NO_x shall not exceed 0.150 lb/mmBTU and 115 ppm @ 3% O_2.	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 7E of 40 CFR 60, App. A.
		SO_2 shall not exceed 0.051 lb/mmBTU.	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 6 or 6C of 40 CFR 60, App. A.

Table 1.3. Emission Limits and Periodic Monitoring Requirements for Steam Generating Units (cont).

Description	Requirement citation (WAC or Order Citation)	Regulatory requirement, emission limit or work practice standard	State-Only enforceable	Periodic monitoring	Test method[1]
No. 2 Distillate fuel-oil fired steam generating units greater than or equal to 5 mmBTU/hr. (cont.)	97NM-138 (cont.)	CO shall not exceed 0.071 lb/mmBTU and 90 ppm @ 3% O_2.	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 10 of 40 CFR 60, App. A.
		Particulate matter (PM_{10}) shall not exceed 0.011 lb/mmBTU.	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 5 of 40 CFR 60, App. A.
		VOC shall not exceed 0.013 lb/mmBTU and 30 ppm @ 3% O_2.	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 25 or 25A of 40 CFR 60, App. A.
Natural gas-fired greater than or equal to 5 mmBTU/hr	97NM-138	NO_x shall not exceed 0.037 lb/mmBTU and 30 ppm @ 3% O_2.	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 7E of 40 CFR 60, App. A.
		CO shall not exceed 0.225 lb/mmBTU and 300 ppm @ 3% O_2.	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 10 of 40 CFR 60, App. A.
		Particulate matter (PM_{10}) shall not exceed 0.012 lb/mmBTU.	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 5 of 40 CFR 60, App. A.

Table 1.3. Emission Limits and Periodic Monitoring Requirements for Steam Generating Units (cont).

Description	Requirement citation (WAC or Order Citation)	Regulatory requirement, emission limit or work practice standard	State-Only enforceable	Periodic monitoring	Test method[1]
Natural gas-fired greater than or equal to 5 mmBTU/hr (cont.)	97NM-138 (cont.)	VOC shall not exceed 0.013 lb/mmBTU and 30 ppm @ 3% O_2.	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 25 or 25A of 40 CFR 60, App. A.
		SO_2 shall not exceed 0.0006 lb/mmBTU	N	Recordkeeping. Section 2.5	
			N	Once every 5 years after startup. Section 2.6	EPA Method 6 or 6C of 40 CFR 60, App. A.

Table 1.3. Emission Limits and Periodic Monitoring Requirements for Steam Generating Units (cont).

General Conditions:

- Operation and maintenance manuals will be obtained from the manufacturer(s) and made available for review by Ecology on request.
- 'Good combustion practices' will be applied to all boilers. Good combustion practices include but are not limited to the following:

Daily	Monthly	Semi-annually	Annually	Every two years
Visually check combustion.	Inspect burner.	Visually inspect air supply system, and clean and repair if necessary.	Conduct boiler tuneups on large boilers (>5mmBTU/hr heat input) by manufacturer trained technicians or other qualified personnel. Section 2.5 Recordkeeping.	Conduct boiler tuneups on smaller boilers (<5 mmBTU/hr heat input) by manufacturer trained technicians or other qualified personnel. Section 2.5 Recordkeeping.
Record available operating data.	Inspect boiler exteriors	Clean and check fuel supply system (visually inspect and replace filters if necessary).	Clean fireside surfaces and breaching for power boilers.	Inspect refractory for low pressure boilers.
	Check combustion controls.			
	Check for leaks.		Inspect refractory for power boilers.	Clean fireside surfaces and breaching for low pressure boilers.
	Check for unusual noise, vibrations, etc.			

[1] The Test Methods identified in this table are used as compliance verification tools. A frequency is not applicable unless specified in the table.

1.4.2 Process: Internal Combustion Engines.

Table 1.4. Internal Combustion Engines: 500 Horsepower and Greater.

Discharge point number	Requirement citation (WAC or Order Citation)	Regulatory requirement, emission limit or work practice standard	State-Only enforceable	Periodic monitoring	Test method[1]
200E E-225BC 001 200E E-225BG 001 300 E-900 001 300 E-1000 001 300 E-900 002 300 E-1450 001 300 E-900 003 300 EP-3020-12S 300 EP-3020-13S 400 E-4250 001, G-3 600 E WSCF 001	WAC 173-400-040(1)	20% Opacity. Prohibits visible emissions exceeding 20% opacity for more than 3 minutes in any 1 hour of an air contaminant from any emissions unit or within a reasonable distance of the emission unit except for scheduled soot blowing/grate cleaning or due to documented water.	N (Section 2.8)	Method: Section 2.1, Tier 1. Frequency: At least once per calendar quarter if operated. 300 EP-3020-13S: Method: Perform manufacturer instructed maintenance necessary to retain certified emissions per 40 CFR 89. Frequency: quarterly and annually.	EPA Method 9.
	WAC 173-400-040(6)	1,000 ppm SO_2 @ 7% O_2 on a dry basis. Prohibits emission of a gas containing sulfur dioxide from any emissions unit in excess of 1,000 ppm of a dry basis, corrected to 7% oxygen for combustion sources, and based on the average of any period of 60 consecutive minutes.	N (Section 2.9)	Section 2.7, Tier 1.	EPA Method 6 or 6C of 40 CFR 60, App. A.

[1] The test methods identified in this table are used as compliance verification tools. A frequency is not applicable unless specified in the table.

1.4.3 Process: Emission Units Exceeding Insignificant Emission Unit Thresholds.

Table 1.5. Processes and Emission Units Exceeding Insignificant Emission Unit Threshold, Excluding Combustion Processes.

Discharge point number	Requirement citation (WAC or Order Citation)	Regulatory requirement, emission limit or work practice standard	State-Only enforceable	Periodic monitoring	Test method[1]
Units with HEPA filtration 200E P-244CR 001 (CR Vault) 200W P-296SY 001 (Exhauster) 200W P-296P028 001 (Backup Exhauster for 200W P-296SY 001) 200E P-296AN 001 (Tank Exhauster) 200W P-296SX 001 (Exhauster) 200E P-296AP 001 (Tank Exhauster) 200E P-296AW 001 (Tank Exhauster) 200E P-296A042 001 (Tank Exhauster)	WAC 173-400-040(1)	20% Opacity. Prohibits visible emissions exceeding 20% opacity for more than 3 minutes in any 1 hour of an air contaminant from any emissions unit or within a reasonable distance of the emission unit except for scheduled soot blowing/grate cleaning or due to documented water.	N (Section 2.8)	Units with HEPA filtration: Section 2.1, Tier 3.	EPA Method 9.
	WAC 173-400-040(6)	1,000 ppm SO_2 @ 7% O_2 on a dry basis. Prohibits emission of a gas containing sulfur dioxide from any emissions unit in excess of 1,000 ppm of a dry basis, corrected to 7% oxygen for combustion sources, and based on the average of any 60 consecutive minutes.	N (Section 2.9)	Section 2.7, Tier 2.	EPA Method 6 or 6C of 40 CFR 60, App. A.

[1] The test methods identified in this table are used as compliance verification tools. A frequency is not applicable unless specified in the table.

1.4.4 Process: NOC Approval Order Conditions.

Table 1.6. Emission Limits and Periodic Monitoring Requirements for Emission Units with NOC Approval Conditions.

The emission units identified in this table are those emission units that have received an Ecology approval order to operate under WAC 173-400-110 New Source Review and/or WAC 173-460-040.

Discharge Point **All emission units identified in Table 1.6 below**[1]

General requirements where more stringent conditions do not exist

Requirement Citation (WAC or Order Citation): WAC 173-400-040(1)

Condition Approval

Condition:	20% opacity: Prohibits visible emissions exceeding 20% opacity for more than 3 minutes in any 1 hour of an air contaminant from any emissions unit or within a reasonable distance of the emission unit except for scheduled soot blowing/grate cleaning or due to documented water.
Periodic Monitoring:	Section 2.1, unless an alternative visible emissions, opacity, or particulate matter emission limit is identified in Table 1.6 below.
Test Method:	EPA Method 9.
Test Frequency:	Not applicable.
Required Records:	As specified in Section 2.1.
State-Only Enforceable:	No.
Calculation Model ID:	Not applicable.

Requirement Citation (WAC or Order Citation): WAC 173-400-040(6)

Condition Approval

Condition:	1000 ppm SO_2 @ 7% O_2 on a dry basis. Prohibits emission of a gas containing sulfur dioxide from any emissions unit in excess of 1000 ppm of a dry basis, corrected to 7% oxygen for combustion sources, and based on the average of any period of 60 consecutive minutes.
Periodic Monitoring:	Section 2.7, Tier 2, unless an alternative SO_2 emission limit is identified in Table 1.6 below.
Test Method:	EPA Method 6 or 6C of 40 CFR 60, App. A.
Test Frequency:	Not applicable.
Required Records:	As specified in Section 2.7.
State-Only Enforceable:	No.
Calculation Model ID:	Not applicable.

[1] The Test Methods identified in this table are used as compliance verification tools. A frequency is not applicable unless specified in the table.

Discharge Point **200 Area Diffuse/fugitive-Tank Farms**

200 Area, Tank Farms - Mixer Pumps

Requirement Citation (WAC or Order DE00NWP-001

Condition Approval **6/13/2000**

Condition:	The data obtained in the course of monitoring worker exposure will be used by the Permittee as an administrative control measure to verify that VOC emissions do not exceed 500 parts per million (PPM). The 500 PPM level will be used as an indicator to facilitate field monitoring of potential VOC emissions, using the existing Industrial Hygiene
Periodic	VOC measurements from each stack.
Test Method:	Organic Vapor Analyzers (OVAs) or similar instruments.
Test Frequency:	At least once per year during mixer pump operations. If mixer pumps do not operate, no monitoring is required.
Required Records:	VOC measurement.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **6/13/2000**

Condition:	Operation of the proposed boilers shall not exceed 720 hours per year per boiler, and be in accordance with good combustion practices (GCP) to minimize emissions, based on the manufacturer's recommendations, and require the use of fuel with a Sulfur content of 0.05% or less. Periodic preventive maintenance and combustion adjustments shall be made, as necessary, to maintain GCP, but at least annually.
Periodic	Recordkeeping. Frequency: Annually.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Operating logs showing all hours of operation. 2. GCP - Preventive maintenance and combustion adjustment records. 3. Records of vendor documentation or fuel analysis documenting procurements of diesel fuel with sulfur content of 0.05% or less once per year.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **200 Area Diffuse/fugitive-Tank Farms**

200 Area, Tank Farms - Mixer Pumps

Requirement Citation (WAC or Order DE00NWP-001

Condition Approval **6/13/2000**

Condition:	Tanks: A new Notice of Construction will be required, if total emissions of toxic air pollutants exceed the SQER, unless dispersion modeling demonstrates that emissions would continue to result in concentrations less than the ASILs. Results of any such dispersion modeling demonstrations/calculations will be maintained on file at the tank farms
Periodic	Analyze each proposed change to determine if emissions would exceed an SQER or ASIL.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval **6/13/2000**

Condition:	An updated schedule of installation and operation activities will be made available upon request.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Copy of updated schedule.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval **6/13/2000**

Condition:	No visible emissions shall be allowed beyond the property line.
Periodic	Boilers: See Section 2.1, Tier 1 Frequency: At least once per quarter Tanks: See Section 2.1, Tier 3.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Records of visible emissions or opacity reading.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **200 Area Diffuse/fugitive-Tank Farms**

200 Area, Tank Farms - Mixer Pumps

Requirement Citation (WAC or Order DE00NWP-001

Condition Approval **6/13/2000**

Condition:	Any modification to any equipment or operating procedures, contrary to information in the NOC application, shall be reported to Ecology at least sixty (60) days before such modification. Such modification may require a new, or amended, NOC Approval Order.
Periodic	Applicable if triggered.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **6/13/2000**

Condition:	Tanks: Notification will be made ten (10) days prior to initiating waste retrieval operations in each tank covered by this order.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Copy of notification.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point **C-106 Sluicing**

200E Area, Tank Farms - Sluicing

Requirement Citation (WAC or Order NRA

Condition Approval **4/9/1999**

Condition:	VOC 500 ppm.
Periodic	Instruments used to detect fugitive organic emissions as part of Hanford's Industrial Hygiene (IH) worker monitoring program will be used to monitor for VOCs during sluicing pump operations.
Test Method:	Hanford's IH monitoring program.
Test Frequency:	Each exhauster operation episode.
Required Records:	Records of VOC sample results.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **4/9/1999**

Condition:	Sluicing operations may only be conducted for 21 days (504) hours per calendar year. Actions shall be taken prior to reaching 500 ppm to limit any excursions above that level. Cumulative sluicing time may be
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Operations log showing all hours of sluicing pump operation.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **Concrete Batch Plant**
200E Area, Vitrification
Requirement Citation (WAC or Order DE01NWP-003, Rev. 7/23/02
Condition Approval **7/23/2002**

Condition:	Section 8, General Condition 1: An emergency spill plan shall be in place during operation and all operations personnel shall be familiar with this plan. The plan shall be posted at the facility. Petroleum or chemical spills shall be reported to Department of Ecology, Nuclear Waste Program Office, Kennewick, WA, (509) 736-5714, consistent with WAC 173-303-145.
Periodic	
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point CWC
200W Area, Central Waste Complex
Requirement Citation (WAC or Order DE00NWP-002

Condition Approval 6/30/2000

Condition:	A new/modified NOC will be required, if total emissions of toxic air pollutants exceed the Small Quantity Emission Rates, unless dispersion modeling demonstrates that emissions would continue to result in concentrations less than the ASILs. Results of any such modeling demonstrations/calculations will be on file at the facility and made available upon inspection.
Periodic	Analyze total emissions to determine if an ASIL will be exceeded. Frequency: Not applicable (conservative worst case calculations were performed in the original NOC application).
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 6/30/2000

Condition:	Any modification to any equipment or operating procedures, contrary to information in the NOC application, shall be reported to Ecology at least sixty (60) days before such modification. Such modification may require a new, or amended, NOC approval Order.
Periodic	Recordkeeping Frequency: sixty (60) days before any modification.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Records of any equipment or procedure modifications.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 6/30/2000

Condition:	No visible emissions shall be allowed beyond the property line.
Periodic	Operator observations per Section 2.1, Tier 1. Frequency: At least annually.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Operating log.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point CWC

200W Area, Central Waste Complex

Requirement Citation (WAC or Order DE00NWP-002

Condition Approval 6/30/2000

Condition:	An annual assessment of SWITS shall be conducted to document compliance that no monitoring and/or sampling systems are needed. This assessment will be reported annually beginning as part of the Calendar Year 1999 nonradioactive inventory of airborne emissions.
Periodic	Conduct an assessment of SWITS data and publish results. Frequency: Annually.
Test Method:	Not specified.
Test Frequency:	Annually.
Required Records:	Analysis of SWITS data.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point E-282ED 001

200E Area, Emergency Fire Pump Generators

Requirement Citation (WAC or Order NWP-96-1

Condition Approval 4/30/1996

Condition:	Engine E shall operate no more than 350 hours per year.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Maintain operations log showing all hours of operation.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 4/30/1996

Condition:	NOx 75.5 pounds per hour NOx.
Periodic	Recordkeeping & average fuel consumption rate determination shall be performed at least once per 12 months.
Test Method:	EPA Method 7A of 40 CFR 60, App. A.
Test Frequency:	Not applicable.
Required Records:	1. Monthly fuel burned (based on annual fuel consumption record.) 2. Hours of operation logged.
State-Only	No.
Calculation Model	2B.

Condition Approval 4/30/1996

Condition:	Engine E shall burn only No. 2 fuel oil with sulfur content no more than 0.05 weight percent.
Periodic	Recordkeeping and/or emission calculations.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Vendor documentation or fuel analysis once per fuel shipment showing <0.05wt% sulfur.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point E-282ED 001

200E Area, Emergency Fire Pump Generators

Requirement Citation (WAC or Order NWP-96-1

Condition Approval 4/30/1996

Condition:	Opacity 10 %.
Periodic	See Section 2.1, Tier 1.
	Frequency: At least once per quarter.
Test Method:	EPA Method 9 of 40 CFR 60, App. A.
Test Frequency:	Not applicable.
Required Records:	Operations log.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point E-282WD 001

200W Area, Generators

Requirement Citation (WAC or Order NWP-96-1

Condition Approval 4/30/1996

Condition:	10 % Opacity.
Periodic	See Section 2.1, Tier 1 Frequency: At least once per quarter.
Test Method:	EPA Method 9 of 40 CFR 60, App. A.
Test Frequency:	Not applicable.
Required Records:	
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 4/30/1996

Condition:	NOx 42 pounds per hour.
Periodic	Recordkeeping & average fuel consumption rate determination shall be performed at least once per 12 months.
Test Method:	EPA Method 7A of 40 CFR 60, App. A.
Test Frequency:	Not applicable.
Required Records:	1. Monthly fuel burned (based on annual fuel consumption record.) 2. Hours of operation logged.
State-Only	No.
Calculation Model	2B.

Condition Approval 4/30/1996

Condition:	Engine W shall burn only No. 2 fuel oil with sulfur content no more than 0.05 weight percent.
Periodic	Recordkeeping and/or emission calculations.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Vendor documentation or fuel analysis once per fuel shipment showing <0.05wt% sulfur.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **E-282WD 001**

200W Area, Generators

Requirement Citation (WAC or Order NWP-96-1

Condition Approval **4/30/1996**

Condition:	Engine W shall operate no more than 350 hours per year.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Maintain operations log showing all hours of operation.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **Emergency Diesel Generators**

300 Area, Generators

Requirement Citation (WAC or Order DE02NWP-001

Condition Approval **1/15/2002**

Condition:	Total Emission Limits A. The activities described in the Notice of Construction application will be permitted without additional control technologies required, provided that the total emissions from all activities will not result in accidence of WAC 173-460 ASILs. B. A new Notice of Construction will be required, if total emissions of toxic air pollutants exceed the Small Quantity Emission Rates, unless dispersion modeling demonstrates that emissions would continue to result in concentrations less than the ASILs. Results of any such dispersion modeling demonstrations/calculations will be maintained on file and made available upon inspection. C. A new NOC also is required if total emissions of criteria pollutants would exceed the WAC 173-400-110 thresholds.
Periodic	Analyze each proposed change to determine if emissions would exceed an ASIL or NSR threshold.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	NSR thresholds - No; ASILs - Yes.
Calculation Model	Not applicable.

Condition Approval **1/15/2002**

Condition:	Emissions Control SOx emissions will be controlled through use of #2 Diesel Fuel with a sulfur content within the range of 0.2% to 0.5%.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Per fuel shipment.
Required Records:	Vendor documentation or fuel analysis showing sulfur content < 0.5%.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **Emergency Diesel Generators**

300 Area, Generators

Requirement Citation (WAC or Order DE02NWP-001

Condition Approval **1/15/2002**

Condition:	Monitoring and Recordkeeping Specific records shall be kept on-site by the Permittee and made available for inspection by Ecology upon request. The records shall be organized in a readily accessible manner and cover a minimum of the most recent sixty (60) month period. The records to be kept shall include the following: A. Maintain records of the hours of operation.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Hours of operation 2. Fuel consumption.
State-Only Calculation Model	Not applicable.

Discharge Point **EP-3020-01-S (Rad Emissions Stack)**

300 Area, EMSL

Requirement Citation (WAC or Order DE03NWP-003 -D

Condition Approval **9/10/2003**

Condition:	2. EMISSION CONTROLS, MONITORING, AND RECORDKEEPING D. 2. Opacity from the sixth stack with High Efficiency Particulate Air
Periodic	Section 2.1, Tier 3
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Maintenance records and procedures (refer to AOP Attachment 2, Section 4.2.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **EP-3020-02-S through 06-S (Five R&D module**
300 Area, EMSL
Requirement Citation (WAC or Order DE03NWP-003
Condition Approval **9/10/2003**

Condition:	2. EMISSION CONTROLS, MONITORING, AND RECORDKEEPING A. Emissions from Research and Development: EMSL research operations may be conducted, and additions and changes made to accommodate changes in research operations. These changes can be made without filing an NOC, provided the emissions from research operations, additions and changes meet the ASILs and WAC 173-400-110 New Source Review (NSR) thresholds. Emissions from research operations, additions and changes will be the sum of all emissions sources in the EMSL building, excluding those otherwise exempt under WAC 173-400 or WAC 173-460, and excluding those due the building support boilers and generator addressed in Condition C of this order. A new NOC will be required if building R&D emissions of toxic air pollutants exceed the Small Quantity Emission Rates, unless a T-Screen or ISCST3 analysis, using the current model versions, is run that shows the emissions would result in concentrations less than the ASILs, or if building R&D emissions of criteria pollutants would exceed the WAC 173-400-110 thresholds. Results of these analyses will be maintained on file at Pacific Northwest National Laboratory (PNNL) for inspection. Emissions from the use of the chemical inventory in the building will be determined as summarized in Methodology for Calculating Air Emissions from R&D in the Environmental Molecular Sciences Laboratory EMSL (PNNL unpublished method, dated 4/21/2003) and
Periodic	Recordkeeping and emissions calculations.
Test Method:	Not specified.
Test Frequency:	For each proposed change.
Required Records:	Emissions estimates and/or modeling results.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **9/10/2003**

Condition:	2. EMISSION CONTROLS, MONITORING, AND RECORDKEEPING B.EMSL personnel shall keep volatile chemicals covered at all times when practical, on weekends, and during evenings hours, or other times
Periodic	Review operating policies.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Implementing procedure.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **EP-3020-02-S through 06-S (Five R&D module**
300 Area, EMSL
Requirement Citation (WAC or Order DE03NWP-003
Condition Approval **9/10/2003**

Condition:	2. EMISSION CONTROLS, MONITORING, AND RECORDKEEPINGD. D. 1.Opacity from the five chemical stacks shall not exceed 10% as
Periodic	1. Section 2.1, Tier 2
Test Method:	1. Ecology Method 9B.
Test Frequency:	Not applicable.
Required Records:	1. Operating log.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point	**EP-3020-07-S through -09, and -12 and -13-S (Three**
300 Area, EMSL	**natural gas boilers and two backup diesel electric**

Requirement Citation (WAC or Order	DE03NWP-003
Condition Approval	**9/10/2003**
Condition:	2. EMISSION CONTROLS, MONITORING, AND RECORDKEEPING D.3.Opacity from stacks (300 EP-3020-07, -08, and -09) for three boilers
Periodic	Section 2.1, Tier 2
Test Method:	EPA Method 9.
Test Frequency:	Not applicable.
Required Records:	Operating log.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **EP-3020-07-S through -09, and -12 and -13-S (Three natural gas boilers and two backup diesel electric**
300 Area, EMSL

Requirement Citation (WAC or Order DE03NWP-003
Condition Approval 9/10/2003
Condition: 2. EMISSION CONTROLS, MONITORING, AND RECORDKEEPING

C.Emissions from Building Boilers and Generators:

The following emission units: three operating or standby 5 MMBTU/hr gas-fired hot water boilers utilizing natural gas and, the above boilers and two backup diesel electric generators (1072 HP and 1186HP) using diesel fuel may be operated using good combustion practices (GCP) as described below:

•The EMSL gas-fired boilers shall be operated in accordance with good combustion practices to minimize emissions based on the manufacturer's recommendations. Periodic preventive maintenance and combustion adjustments shall be made as necessary to maintain GCP, but at least annually. Per Ecology's request, DOE shall demonstrate the effectiveness of GCP to Ecology during normal operation of the boilers.

The EMSL boilers may be operated on diesel fuel for routine maintenance and testing and to maintain building operations when gas supplies are interrupted. The diesel-electric generators may be operated during electrical utility service failures and power curtailments and for routine maintenance and testing.

Compliance with the limits in Approval Condition 1B will be deemed achieved by:

•Limiting the total diesel fuel consumption by all three boilers combined to 11,160 gallons/year. In the event primary gas supplies are interrupted for more than the assumed 200 full capacity-hours/year, boilers may be operated as necessary to maintain essential building operations, upon notification to Ecology, irrespective of the above emission limits.

•Limiting natural gas consumption by all boilers combined to 283,000 therms per year.

•Limiting the total fuel consumed by both diesel generators to 36,900 gallons/year. In the event primary electrical supplies are interrupted for more than the assumed 300 hours/year/generator, generators may be operated as necessary to maintain essential building operations, upon notification to Ecology, irrespective of the above emission limits.

•Operating the boilers and the diesel electric generators in accordance with good combustion practices to minimize emissions based on the manufacturer's recommendations, and by using diesel fuel with a sulfur content of 0.05% or less.

The following records shall be maintained and presented to Ecology upon request:

	generator) •Annual (calendar year) natural gas and diesel fuel consumption by boilers •Annual (calendar year) diesel fuel consumption by generators •Records demonstrating operation to good combustion practices •Records documenting use of diesel with a sulfur content of 0.05% or less	
Periodic Test Method:	Recordkeeping. This condition is required to implement the Washington State Implementation Plan, and is therefore federally enforceable.	Not specified.
Test Frequency:		Annually.
Required Records:	1. Annual (calendar year) natural gas and diesel fuel consumption by boilers. 2. Annual (calendar year) diesel fuel consumption by generators. 3. Records of preventive maintenance, combustion adjustments, and operation as necessary to maintain GCP based on manufacturer's recommendations for minimizing emissions. 4. Records of vendor documentation of fuel analysis documenting procurements or diesel fuel with a sulfur content of 0.05% or less once	
State-Only	No.	
Calculation Model	Not applicable.	

Discharge Point EP-305B-02-V Gas Cylinder Management Process

300 Area, Gas Cylinder Management Process

Requirement Citation (WAC or Order DE 98NWP-003

Condition Approval 9/1/1998

Condition:	General Conditions: Visible emissions - No visible emissions shall be allowed beyond the property line, as determined by opacity readings when warranted.
Periodic	Section 2.1, Tier 2.
Test Method:	EPA Method 9.
Test Frequency:	Frequency: At least once per quarter, or as prescribed for Tier2.
Required Records:	Operating log.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 9/1/1998

Condition:	GCMP Release Limits: The maximum total quantity of residuals that are allowed to be released under this Order per calendar year will not exceed two (2) tons/year. This shall include no more than one (1) ton/year of Class I and Class II ozone-depleting substances.
Periodic	Operator recording of release information. Frequency: for each release.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Daily volumes and concentrations emitted from each cylinder and operator signature.
State-Only	Yes.
Calculation Model	6.

Condition Approval 9/1/1998

Condition:	GCMP Release Limits: The above release limits and the ASILs shall not be exceeded until a revised NOC application is submitted to Ecology and approved by
Periodic	Applicable if triggered.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Chemical inventory if use rates are unavailable. 2. Volumes and concentrations in each cylinder. 3. Waste handling rates. 4. Chemical use rate. 5. Chemical inventory if use rates are unavailable.
State-Only	No.
Calculation Model	6.

Discharge Point EP-305B-02-V Gas Cylinder Management Process

300 Area, Gas Cylinder Management Process

Requirement Citation (WAC or Order DE 98NWP-003

Condition Approval 9/1/1998

Condition:	Total Building Emission Limits: GCMP process and emission controls, building research and waste handling projects and supporting operations, and building equipment additions and changes, including emission control systems, can be made to accommodate changing research and support requirements without filing a new Notice of Construction, providing the total emissions meet the ASILs and WAC 173-400-110 NSR thresholds.
Periodic	Recordkeeping Frequency: For each release.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	NSR thresholds - No; ASILs - Yes.
Calculation Model	7A and 7B.

Condition Approval 9/1/1998

Condition:	Total Building Emission Limits: A new NOC will be required if total building emissions of toxic air pollutants exceed the Small Quantity Emission Rates, unless a T-Screen analysis is run that shows that emissions would result in concentrations less than ASILs. Results of these analyses will be maintained on file at PNNL for inspection.
Periodic	Applicable if triggered.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Chemical inventory if use rates are unavailable 2. Volumes and concentrations in each cylinder 3. Waste handling rates 4. Chemical use rate 5. Chemical inventory if use rates are unavailable.
State-Only	Yes.
Calculation Model	6, 7A & 7B.

Discharge Point EP-305B-02-V Gas Cylinder Management Process

300 Area, Gas Cylinder Management Process

Requirement Citation (WAC or Order DE 98NWP-003

Condition Approval 9/1/1998

Condition:	Total Building Emission Limits: A new NOC will be required if total building emissions of criteria pollutants would exceed the WAC 173-400-110 thresholds.
Periodic	Applicable if triggered.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Chemical inventory if use rates are unavailable 2. Volumes and concentrations in each cylinder 3. Waste handling rates 4. Chemical use rate 5. Chemical inventory if use rates are unavailable.
State-Only	No.
Calculation Model	6, & 7A.

Condition Approval 9/1/1998

Condition:	Monitoring and Recordkeeping: Specific records shall be kept on-site by the permittee and made available for inspection by Ecology upon request. The records shall be organized in a readily accessible manner and cover a minimum of the most recent 60-month period.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Logbook identifying individual cylinders. 2. Logbook identifying contents of the cylinders 3. The amount of residuals 4. The date and rate of release 5. Any other information pertaining to said release.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point EP-305B-02-V Gas Cylinder Management Process

300 Area, Gas Cylinder Management Process

Requirement Citation (WAC or Order DE 98NWP-003

Condition Approval 9/1/1998

Condition:	Should any of the emissions become subject to 40 Code of Federal Regulations (CFR) 264/265 Subparts AA, those emissions would be regulated under those parts and are then exempt from WAC 173-460. In that event, those exempted emissions would be excluded from ASIL and threshold evaluations.
Periodic	Applicable if triggered.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point EP-325-01-S Hazardous Waste Treatment Unit

300 Area, Hazardous Waste Treatment Unit

Requirement Citation (WAC or Order DE 98NWP-004

Condition Approval 9/1/1998

Condition:	A new Notice of Construction will be required if total building emissions of toxic air pollutants exceed the Small Quantity Emission Rates, unless a T-Screen analysis is run that shows the emissions would result in concentrations less than the ASILs.
Periodic	Recordkeeping and emission calculations. Frequency: Each proposed change.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	Yes.
Calculation Model	7A and 7B.

Condition Approval 9/1/1998

Condition:	Total Building Emission Limits: HWTU process and emission controls, building research and waste handling projects and supporting operations, and building equipment additions and changes, including control systems, can be made to accommodate changing research and support requirements without filing a new Notice of Construction, providing the total emissions meet the ASILs and WAC 173-400-110 NSR thresholds.
Periodic	Recordkeeping and emission calculations. Frequency: Each treatment process and proposed change.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	NSR thresholds - No; ASILs - Yes.
Calculation Model	7A and 7B.

Condition Approval 9/1/1998

Condition:	A new Notice of Construction also is required if total building emissions of criteria pollutants would exceed the WAC 173-400-110
Periodic	Applicable if triggered.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **EP-325-01-S Hazardous Waste Treatment Unit**

300 Area, Hazardous Waste Treatment Unit

Requirement Citation (WAC or Order DE 98NWP-004

Condition Approval **9/1/1998**

Condition:	Monitoring and Recordkeeping: Specific records shall be kept on-site by the permittee and made available for inspection by Ecology upon request. The records shall be organized in a readily accessible manner and cover a minimum of the most recent 60-month period.
Periodic	Recordkeeping and emission calculations.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. HWTU unit feed rates for TAPS and NSR threshold listed criteria pollutants. 2. HWTU treatment process destruction efficiency data or engineering estimatest. 3. Engineering estimates of the maximum emissions of reaction products of the HWTU treatment process. 4. Evaluations of each bench-scale treatment process or additions or changes not otherwise exempt.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **9/1/1998**

Condition:	General Conditions: Visible Emissions - No visible emissions shall be allowed beyond the property line, as determined by opacity readings when warranted.
Periodic	See Section 2.1, Tier 3.
Test Method:	EPA Method 9.
Test Frequency:	Not applicable.
Required Records:	Operating log.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **EP-325-01-S Hazardous Waste Treatment Unit**

300 Area, Hazardous Waste Treatment Unit

Requirement Citation (WAC or Order DE 98NWP-004

Condition Approval **9/1/1998**

Condition:	HWTU Feed Rate: The process feed rate shall be limited to a rate that will control the WAC 173-460 listed Toxic Air Pollutants (TAPs) to meet the Acceptable Source Impact Level (ASIL), and in any case, not to exceed 8,000 kg of waste per calendar year total for the HWTU the permittee is proposing under this NOC application approval Order.
Periodic	Recordkeeping. Frequency: Daily when operating.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	HWTU daily feed rate (Total and WAC 173-460 TAPs).
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point **EP-329-01-S Chemical Sciences Laboratory**

300 Area, 329 Building Activities

Requirement Citation (WAC or Order NWP95-329/300A

Condition Approval **9/18/1996**

Condition:	Opacity 5 %.
Periodic	See Section 2.1, Tier 3.
Test Method:	EPA Method 9 of 40 CFR Part 60, Appendix A.
Test Frequency:	Not applicable.
Required Records:	
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **9/18/1996**

Condition:	VOC 0.8 lb/hr.
Periodic	Chemical inventory and usage records and emission calculations for each change.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	Yes.
Calculation Model	4B.

Discharge Point EP-331-01-V Life Sciences Laboratory I

300 Area, Life Sciences Laboratory Activities

Requirement Citation (WAC or Order 97NM-147

Condition Approval 11/10/1997

Condition: A new Notice of Construction shall be filed if emissions of toxic air pollutants exceed the pounds per year Small Quantity Emissions Rates (SQER) of WAC 173-460-080(2)(e), or it shall be on file at the 331 Building that T-SCREEN was run and that emissions were less than the Acceptable Source Impact Level (ASIL), in accordance with 173-460-080(2) and (3). Results shall be on file at PNNL for inspection.

A new Notice of Construction shall be filed if emissions of criteria pollutants exceed the following thresholds:

Carbon Monoxide - 20 tons/year
Nitrogen Oxides - 8 tons/year
Sulfur dioxide - 8 tons/year
Volatile Organic Compounds - 8 tons/year
Particulate matter - 5 tons/year
PM-10 - 3 tons/year
Lead - 0.12 tons/year.

Periodic Recordkeeping
Frequency: For each change.

Test Method: Not specified.

Test Frequency: Not applicable.

Required Records: Results of analyses.

State-Only Yes.

Calculation Model 7A and 7B.

Discharge Point N-1724K 001

100K Area, Work Activities

Requirement Citation (WAC or Order 97NM-551

Condition Approval 1/29/1998

Condition:	Volatile Organic Compounds: Use of an activated charcoal filter is required. The filter shall be examined and replaced when it becomes
Periodic	Filter maintenance inspections.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Maintenance records and schedules.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 1/29/1998

Condition:	Particulate Matter (PM): For welding, use of a commercially available portable fume exhauster is required containing a two stage electrostatic precipitator (filter) that removes 98 percent of the particulates. For abrasive blasting, use of a commercially available ventilation system containing a cloth bag filtration system. For sawdust, use of a cyclone separator and bag filter prior to discharge to the atmosphere.
Periodic	Startup inspection.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Inspection records. 2. Work procedures.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **P-2025E ETF**

200E Area, Effluent Treatment

Requirement Citation (WAC or Order 96NW-1-301

Condition Approval **10/16/1996**

Condition:	Any addition of waste streams that do not meet the new source review exemption in WAC 173-460-040(2)(c) or that have previously unidentified constituents to the facility requires prior review and approval by the Department of Ecology.
Periodic	Analyze each waste stream to determine if emissions would exceed an SQER or ASIL.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analysis.
State-Only	Yes.
Calculation Model	7C.

Requirement Citation (WAC or Order NOC-93-3

Condition Approval **12/20/1993**

Condition:	Energy shall notify the department in writing at least 45 days before start-up of any emission unit subject to this approval which could cause release of any air pollutants to the atmosphere.
Periodic	Not applicable.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **12/20/1993**

Condition:	Energy shall not make any changes to the proposed air emission control system which may result in an increase; or change the types of air emissions without first notifying the department. Based on the notification, the department will make a determination whether a new approval or a modification of this final approval is required.
Periodic	Not applicable.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **P-2025E ETF**

200E Area, Effluent Treatment

Requirement Citation (WAC or Order NOC-93-3

Condition Approval **12/20/1993**

Condition:	Opacity at each stack 5%.
Periodic	See Section 2.1, Tier 3.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	As required in Attachment 2, Section 4.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point P-241U107-001, P-241S102-001, P-241S112-001

200W Area, Tank Farms - Waste Retrieval System

Requirement Citation (WAC or Order DE03NWP-001

Condition Approval 3/17/2003

Condition:	EMISSION CONTROL MONITORS Although all contaminant emissions are estimated below their respective small quantity emission rates (SQERS) or below their acceptable source impact levels (ASILs), during waste retrieval, the following sampling and monitoring will take place to verify emissions estimates and to ensure emission limits are not exceeded: Additional Suma sampling will be performed in accordance with the IH sampling plan to obtain a representative sample of standard target compounds. However, any spikes detected during analysis that are not on the target compound list will be noted and analyzed for if warranted. This sampling and analysis shall be functionally equivalent with standard EPA method 15A, including all Quality Assurance and Quality Control (QA/QC) protocols. The IH sampling and analysis plan (including a QA/QC plan) shall be provided to Ecology.
Periodic	Recordkeeping.
Test Method:	EPA Method 15A or functionally equivalent method.
Test Frequency:	Not applicable.
Required Records:	1. Suma sampling results. 2. IH sampling and analysis plan.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 3/17/2003

Condition:	GENERAL REQUIREMENTS An updated schedule of installation and operation activities will be made available upon request.
Periodic	Recordkeeping
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Copy of updated schedule.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point P-241U107-001, P-241S102-001, P-241S112-001

200W Area, Tank Farms - Waste Retrieval System

Requirement Citation (WAC or Order DE03NWP-001

Condition Approval 3/17/2003

Condition:	EMISSION CONTROLS The controls established under the site specific and general Health and Safety Plans, as they apply to minimizing the instantaneous mass emission rate from the tank, are hereby made part of this approval order. A list and description of these controls shall be provided to Ecology
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	List and description of controls.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 3/17/2003

Condition:	EMISSION CONTROL MONITORS Although all contaminant emissions are estimated below their respective small quantity emission rates (SQERS) or below their acceptable source impact levels (ASILs), during waste retrieval, the following sampling and monitoring will take place to verify emissions estimates and to ensure emission limits are not exceeded: A grab sample will be drawn and analyzed for nitrosamines (N nitrosodimethylamine and related compounds) from the sampling port of the exhauster stack on each of the three tanks to be retrieved. Samples will be drawn within 15 minutes after the first start of an exhauster, approximately two hours after the first start of waste retrieval and again when approximately half of the waste has been transferred. This analysis is in addition to the list of compounds presented under item (C.) below. This sampling and analysis shall be functionally equivalent with standard EPA method 15A, including all Quality Assurance and Quality Control (QA/QC) protocols. The IH sampling and analysis plan (including a QA/QC plan) shall be provided to Ecology.
Periodic	Recordkeeping.
Test Method:	EPA Method 15A or functionally equivalent method.
Test Frequency:	1. 15 minutes after the first start of an exhauster 2. Approximately two hours after the first start of waste retrieval 3. When approximately half of the waste has been transferred.
Required Records:	Results of sample analyses.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point P-241U107-001, P-241S102-001, P-241S112-001

200W Area, Tank Farms - Waste Retrieval System

Requirement Citation (WAC or Order DE03NWP-001

Condition Approval 3/17/2003

Condition:	EMISSION CONTROL MONITORS Although all contaminant emissions are estimated below their respective small quantity emission rates (SQERS) or below their acceptable source impact levels (ASILs), during waste retrieval, the following sampling and monitoring will take place to verify emissions estimates and to ensure emission limits are not exceeded: If the exhauster is not operated at all during the retrieval operation, alternative sampling and analysis methods to determine maximum emissions will be established under the IH Monitoring Plan. A sampling and analysis plan (including a QA/QC plan) shall be provided to Ecology upon request. The permitee will provide an alternative plan for measuring toxic emissions if the exhauster is not operated during retrieval. Ecology reserves the right to request a modification to this plan.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Alternative plan for measuring toxic emissions, if portable exhauster is not used.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 3/17/2003

Condition:	EMISSION CONTROL MONITORS Although all contaminant emissions are estimated below their respective small quantity emission rates (SQERS) or below their acceptable source impact levels (ASILs), during waste retrieval, the following sampling and monitoring will take place to verify emissions estimates and to ensure emission limits are not exceeded: Volatile Organic Compounds (VOCs), ammonia, and other air toxic levels, to include NDMA as necessary, will be monitored in accordance with the industrial hygiene worker safety program and site specific IH Monitoring Plan and this order. A plan for monitoring shall be submitted to Ecology upon request.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	IH Monitoring Plan.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point P-241U107-001, P-241S102-001, P-241S112-001

200W Area, Tank Farms - Waste Retrieval System

Requirement Citation (WAC or Order DE03NWP-001

Condition Approval 3/17/2003

Condition:	GENERAL REQUIREMENTS Notification will be made ten (10) days prior to initiating waste retrieval operations covered by this Order.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Notification documentation.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 3/17/2003

Condition:	TOTAL EMISSION LIMITS A new NOC also is required if total emissions of criteria pollutants would exceed the WAC 173 400 110 thresholds.
Periodic	Recordkeeping and calculations.
Test Method:	Not specified.
Test Frequency:	At least once per calendar year, if NOC is used.
Required Records:	Calculations of criteria pollutants.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 3/17/2003

Condition:	EMISSION CONTROLS The portable exhausters may be used to control emissions. If the exhauster is in use, exhaust will be monitored for VOCs and ammonia until levels rise and fall off, or until the dome space VOC and ammonia concentrations are reduced to minimum levels (at which point the levels
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Portable exhauster exhaust monitoring records for ammonia and VOCs.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point P-2706T 001
200W Area, T Plant Complex
Requirement Citation (WAC or Order DE01NWP-002

Condition Approval 9/17/2001

Condition:	General Requirements An annual assessment of SWITS shall be conducted to document compliance that no monitoring and/or sampling systems are needed. This assessment will be reported annually beginning as part of the Calendar Year 2001 non-radioactive inventory of airborne emissions.
Periodic	Conduct an assessment of SWITS data and publish results.
Test Method:	Not specified.
Test Frequency:	Annually.
Required Records:	Analysis of SWITS data.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 9/17/2001

Condition:	Emission Control Monitors A. No sampling is required for non-radioactive air emissions because all contaminant emissions are below their respective small quantity emission rates. B. However, organic vapor analyzers (OVAs), or other similar instruments for detecting fugitive organic emissions, as part of Hanford's Industrial Hygiene program to monitor worker exposure, will be used to monitor for VOCs. C. The data obtained in the course of monitoring worker exposure will be used by the Permittee as an administrative control measure to verify the VOC emissions do not exceed criteria set forth in Hanford's Industrial Hygiene Program for the chemical of concern during the work day.
Periodic	A. Not applicable B. & C. Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Worker Exposure records.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point P-2706T 001

200W Area, T Plant Complex

Requirement Citation (WAC or Order DE01NWP-002

Condition Approval 9/17/2001

Condition:	General Conditions A. Visible Emissions: No visible emissions shall be allowed beyond the property line.
Periodic	Section 2, Tier 3.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Maintainence records.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 9/17/2001

Condition:	Total Emission Limits A. The activities described in the Notice of Construction application will be permitted without additional control technologies required, provided that the total emissions from all activities will not result in exceedance of WAC 173-460 ASILs. B. A new Notice of Construction will be required, if total emissions of toxic air pollutants exceed the Small Quantity Emission Rates, unless dispersion modeling demonstrates that emissions would continue to result in concentrations less than the ASILs. Results of any such dispersion modeling demonstrations/calculations will be maintained on file in the T Plant Complex Regulatory File and made available upon inspection. C. A new NOC also is required if total emissions of criteria pollutants would exceed the WAC 173-400-110 thresholds.
Periodic	Analyze each proposed changed to determine if emissions would exceed an ASIL or NSR threshold.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of anayses.
State-Only	NSR thresholds - No; ASILs - Yes.
Calculation Model	Not applicable.

Discharge Point P-291Z001-001
200W Area, Plutonium Stabilization and Handling
Requirement Citation (WAC or Order DE01NWP-001

Condition Approval 7/17/2001

Condition:	Total Emission Limits: A. The activities described in the NOC application will be permitted without additional control technologies required, provided that the total emissions from all activities will not exceed the Small Quantity Emission Rates (SQERs) for constituents where a SQER is listed. Constituents without a listed SQER cannot result in exceedence of WAC 173-460 ASILs. B. A new NOC will be required, if total emissions of toxic air pollutants exceed the SQERs, unless dispersion modeling demonstrates that emissions would continue to result in concentrations less than the ASILs. Results of any such dispersion modeling demonstrations/calculations will be maintained on file at the facility and made available upon inspection. C. A new NOC also is required if total emissions of criteria pollutants
Periodic	Analyze each proposed change to determine if emissions would exceed an ASIL or NSR threshold.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	NSR thresholds - No; ASILs - Yes.
Calculation Model	Not applicable.

Condition Approval 7/17/2001

Condition:	General Requirements: In accordance with the method(s) identified in Section 6 of this Order, an annual assessment shall be conducted to document compliance that no monitoring and/or sampling systems are needed. This assessment will be reported annually beginning as part of the Calendar Year 2001 nonradioactive inventory of airborne emissions report as specified in WAC 173-400-105.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Annually.
Required Records:	WAC 173-400-105 Report.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point P-291Z001-001

200W Area, Plutonium Stabilization and Handling

Requirement Citation (WAC or Order DE01NWP-001

Condition Approval 7/17/2001

Condition:	Monitoring and Recordkeeping: Facility operating records will be maintained on file to verify the low emission estimates stated in the notice of construction application have not been exceeded. Each batch of material from the total polycube inventory entering the furnaces will also be recorded (i.e., grams of polycube material per unit time) on the facility operating records, which are classified. The classified records shall be kept on-site by the Permittee and made available to cleared Ecology personnel, upon request. The records will cover a minimum of the most recent sixty- (60-) month period. Emissions from the polycube thermal stabilization process will be reported in the annual Hanford report, pursuant to WAC 173-400-105.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Per batch.
Required Records:	1. Emission estimates/calculations. 2. Operating log showing number of batches processed.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point P-296A042-001

200E Area, Tank Farms - Ventilation Upgrades

Requirement Citation (WAC or Order NOC 94-07

Condition Approval 8/29/1994

Condition:	Opacity, 5%.
Periodic	See Section 2.1, Tier 3.
Test Method:	EPA Method 9 of 40 CFR Part 60, App. A.
Test Frequency:	Not applicable.
Required Records:	As required in Attachment 2, Section 4.2.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 12/22/1997

Condition:	VOC max emission limit, 50 ppm, measured as Total Organic Carbon.
Periodic	Recordkeeping and emission calculations.
Test Method:	EPA Method 25A or approved alternative.
Test Frequency:	Annually.
Required Records:	Organic vapor sampling data.
State-Only	No.
Calculation Model	4A.

Condition Approval 8/29/1994

Condition:	Ammonia, 0.05 lbs/hr.
Periodic	Recordkeeping and emission calculations.
Test Method:	Field instruments, which may include Draeger Tubes.
Test Frequency:	Annually.
Required Records:	1. Stack flow measurements. 2. Record field instrument or Draeger Tube ammonia concentrations.
State-Only	No.
Calculation Model	5.

Discharge Point P-296K142 001

100K Area, Cold Vacuum Drying

Requirement Citation (WAC or Order 97NM-022

Condition Approval 3/7/1997

Condition:	Approval to construct and install process equipment.
Periodic	None.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	None.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point P-296P033-001 & P-296P034-001

200 Area, Tank Farms - Rotary Mode Core Sampling Systems

Requirement Citation (WAC or Order DE98NWP-005

Condition Approval 9/3/1998

Condition:	Emissions of volatile organic compounds (VOCs) on a daily average at the stack, shall not exceed the WAC 173-400-110 NSR thresholds.
Periodic	Recordkeeping and emission calculations.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. TWINS data. 2. Calculations. 3. Operating log.
State-Only	No.
Calculation Model	10C.

Condition Approval 9/3/1998

Condition:	The permittee shall conduct a vapor composition analysis for each tank to be core-sampled. The emissions estimates, monitoring and exhauster operation will be conducted as described by the NOC application.
Periodic	Recordkeeping and emission calculations.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Calculations. 2. TWINS data.
State-Only	No.
Calculation Model	10A & 10B.

Discharge Point P-296W004 001

200W Area, Waste Receiving and Processing

Requirement Citation (WAC or Order DE03NWP-002

Condition Approval 5/21/2003

Condition:	Emission Controls Monitors: Source data from an Organic Vapor Analyzer using a Photoionization detector (PID) with at least an 11.7eV lamp, or other device capable of detecting TAPs, was conducted by the facility in providing verification of de minimus (i.e., parts per million levels) fugitive emissions in the drum storage and NDE/NDA areas. The results of source test information, conducted on or at the source(s) locations in lieu of downstream at the stack, have been provided to the permit writer under separate cover. This information had been determined to satisfy the previous approval order condition for this source in performing one-time monitoring to demonstrate TAP emissions are below the estimates provided in the NOC application and T-BACT analysis for the drum storage and DNE/NDA areas. As such, no additional sampling or monitoring will be required under this approval order. The facility will continue to perform at least once every two years, and make available upon request or inspection, results from any Industrial Hygiene program measurements to further demonstrate compliance with limits contained herein. The test plan for conducting these measurements shall also be maintained on file and made available upon request and/or inspection by Ecology.
Periodic	IH Program measurements as specified in NOC, including alternative methods.
Test Method:	Not specified.
Test Frequency:	Once every two years.
Required Records:	Test plan. Measurement results.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point P-296W004 001

200W Area, Waste Receiving and Processing

Requirement Citation (WAC or Order DE03NWP-002

Condition Approval 5/21/2003

Condition:	Total Emission Limits: For toxic compounds not included in the T-BACT analysis, the emission limits shall be the Small Quantity Emission Rate (SQER). A modification submittal of a Notice of Construction (NOC) application will be required if the SQER limit would be exceeded for compounds not addressed under the T-BACT assessment. The calculation/measurement methods described n section 4 below, or other method as approved by Ecology, may be used to document compliance with the SQER limit.
Periodic	PID or other device capable of detecting TAPs measurements.
Test Method:	Not specified.
Test Frequency:	Once every 2 years.
Required Records:	1. IH Test Plan. 2. Results of measurements.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 5/21/2003

Condition:	An internal annual assessment of the facility container tracking system, such as SWITS of the data management system (DMS), shall be conducted by the facility to document/verify de minimus emissions from the source. This assessment will be maintained on file, made available for Ecology inspector requests, and compiled into emission estimates that will be reported annually beginning as part of the Calendar Year 2003 nonradioactive inventory of airborne emissions.
Periodic	Recordkeeping; Comparison to threshold.
Test Method:	Not specified.
Test Frequency:	Annually.
Required Records:	1. Throughput records, SWITs query evaluation if > 1,000 drums. 2. Nonradioactive air emissions inventory report required by WAC 173-400-105.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point P-296W004 001

200W Area, Waste Receiving and Processing

Requirement Citation (WAC or Order DE03NWP-002

Condition Approval 5/21/2003

Condition:	Total Emission Limits: The processing and repackaging activities described in the Notice of Construction application will be permitted without requiring additional emission controls, provided that the emissions form the stack, venting the 100 and 300 Series Waste Process Lines, the 200 and 400 Restricted Waste process Lines, the process area, and the storage areas are maintained below the level described in and meeting T-BACT (according to WRAP Module 1 Best Available Control Technology Assessment, WHC-SD-W026-TI-005, January 1993, Westinghouse Hanford Company, Richland, Washington).
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Documentation implementing T-BACT.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point P-340NTEX-001

300 Area, Tank Sludge Cleanout

Requirement Citation (WAC or Order 97NM-137

Condition Approval 5/5/1997

Condition:	Maintain negative pressure of tanks during solids removal.
Periodic	Not applicable.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Operations log showing negative air pressure was maintained during solids removal from tank.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 5/5/1997

Condition:	Implement temporary pollution controls during removal of solids and equipment from tanks. Temporary pollution controls implemented during solids removal will consist of temporary barriers installed between the tank access port and the surrounding area. Temporary pollution controls implemented during removal of equipment will consist of plastic sleeving to provide a barrier between the equipment and the surrounding work area and the environment.
Periodic	Not applicable.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Operations log showing appropriate temporary pollution control was in place during solids removal and equipment removal.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 5/5/1997

Condition:	Control particulates with a prefilter and two banks of HEPAs. HEPAs are to be in-place tested to demonstrate removal efficiency of 99.95% for particulates with a 0.3 micron median diameter.
Periodic	Not applicable.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Inspection records. 2. HEPA test results.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **P-WTP-001**
200E Area, Vitrification
Requirement Citation (WAC or Order DE02NWP-002

Condition Approval **7/8/2002**

Condition:	Opacity from other facility non-combustion stacks shall not exceed 10 percent, over a 6 minute average as measured by EPA Reference Method 9, or an equivalent method approved in advance by Ecology. A certified opacity reader shall read and record the opacity concurrent with any source testing.
Periodic	See Section 2.1, Tier 2.
Test Method:	EPA Reference Method 9.
Test Frequency:	At least once per calendar year.
Required Records:	Test Records.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **7/8/2002**

Condition:	Each of the 4 hot water boilers shall not operate for more than 2,628 hours per year on a12 month rolling summation calculated once per month. Compliance shall be monitored by installing and operating non-resetable totalizers on each boiler.
Periodic	Recordkeeping.
Test Method:	Not Specified.
Test Frequency:	Monthly.
Required Records:	Records showing all hours of operation.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **7/8/2002**

Condition:	Each of the 5 steam generating boilers shall not exceed 7,008 hours per year on a 12 month rolling summation calculated once per month. Compliance shall be monitored by installing and operating non-resetable totalizers on each boiler.
Periodic	Recordkeeping.
Test Method:	Not Specified.
Test Frequency:	Monthly.
Required Records:	Records showing all hours of operation.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **P-WTP-001**
200E Area, Vitrification
Requirement Citation (WAC or Order DE02NWP-002

Condition Approval **7/8/2002**

Condition:	All boilers, generators and the diesel fire pump shall be fired on Ultra-Low Sulfur Fuel (ULSF), unless the permittee has demonstrated that ULSF is not available or not practical and Ecology agrees in writing that such a demonstration has been made, in which case low sulfur fuel shall be used. For the purpose of this provision, ULSF means natural gas, propane, or fuel oil with a sulfur content of 0.0030% or less. Low sulfur fuel means fuel oil with a sulfur content of less than 0.05%. At a minimum, a demonstration of non-availability shall consist of submittal by the permittee of a written statement concerning each refinery in the State of Washington that ULSF is not available. At a minimum a demonstration of non-practicality shall consist of submittal by the permittee of the reason that ULSF cannot be used, including a technical analysis and a survey of other similar locations showing that ULSF has been found not to be practical at these locations. If Ecology agrees that a demonstration of non-availability or non-practicality has been made, it shall state its agreement in a letter allowing the use of low sulfur fuel for a period not to exceed one year, after which the permittee must either use ULSF or again make a demonstration of non-availability or non-practicality. Compliance shall be monitored by maintaining and submitting records of fuel purchases.
Periodic	Recordkeeping.
Test Method:	Not Specified.
Test Frequency:	Not Applicable.
Required Records:	Records of monthly fuel purchases and use and an annual certification, from the fuel distributor, stating the sulfur content of the fuel that was
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **7/8/2002**

Condition:	Each of the 6 emergency generators shall not operate for more than 24 hours per year on a 12 month rolling summation calculated once per month. Compliance shall be monitored by installing and operating non-resetable totalizers on each generator.
Periodic	Recordkeeping.
Test Method:	Not Specified.
Test Frequency:	Monthly.
Required Records:	Records showing all hours of operation.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **P-WTP-001**
200E Area, Vitrification
Requirement Citation (WAC or Order DE02NWP-002

Condition Approval **7/8/2002**

Condition:	The diesel fire pump shall not operate for more than 35 hours per year on a 12 month rolling summation calculated once per month. Compliance shall be monitored by installing and operating a non-resetable totalizer on the fire pump.
Periodic	Recordkeeping.
Test Method:	Not Specified.
Test Frequency:	Not Applicable.
Required Records:	Records showing all hours of operation.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval **7/8/2002**

Condition:	A new NOC will be required, if total emissions of toxic air pollutants exceed the values specified in tables 4, 5 and 6 in Attachment 1. These values shall be confirmed by emission calculations, for indicator constituents, derived from waste characterization data obtained through implementation of the Ecology approved Regulatory Data Objectives Supporting Tank Waste Remediation System Privatization Project (PNNL-12040). Results of any such calculations will be maintained on file and made available upon inspection/request.
Periodic	Recordkeeping
Test Method:	Not Specified.
Test Frequency:	At least once per calendar year.
Required Records:	1. Calculations of TAPs emissions derived from waste feed characterization.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval **7/8/2002**

Condition:	A new NOC also is required if total emissions of any criteria pollutants, derived from calculations/monitoring, would exceed the estimates listed under the Emissions section of this order DE02NWP-002.
Periodic	Recordkeeping
Test Method:	Not Specified.
Test Frequency:	At least once per calendar year.
Required Records:	Calculations of criteria pollutants.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point P-WTP-001
200E Area, Vitrification
Requirement Citation (WAC or Order DE02NWP-002

Condition Approval 7/8/2002

Condition:	Emissions Control LAW maximum production of solid vitrified borosilicate glass shall not exceed 18,250 metric tons/year on a 12 month rolling summation calculated once per month. Compliance shall be monitored by maintaining and submitting records.
Periodic	Recordkeeping.
Test Method:	Not Specified.
Test Frequency:	Monthly.
Required Records:	Production records of LAW and HLW vitrification product.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 7/8/2002

Condition:	Emissions Control HLW maximum production of solid vitrified borosilicate glass shall not exceed 1,095 metric tons/year on a 12 month rolling summation calculated once per month. Compliance shall be monitored by maintaining and submitting records.
Periodic	Recordkeeping.
Test Method:	Not Specified.
Test Frequency:	Monthly.
Required Records:	Production records of LAW and HLW vitrification product.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 7/8/2002

Condition:	Opacity from each exhaust stack from process facilities (Pretreatment, HLW and LAW) shall not exceed 5 percent.
Periodic	See Section 2.1, Tier 3.
Test Method:	Not Specified.
Test Frequency:	Not Applicable.
Required Records:	Maintenance records as required by Attachment 2, Section 4.2.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point **P-WTP-001**
200E Area, Vitrification
Requirement Citation (WAC or Order DE02NWP-002

Condition Approval **7/8/2002**

Condition:	A modification to the PSD permit will be necessary before SOx emissions shall exceed 40 tons/year.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Monthly.
Required Records:	A monthly report of total SOx emissions from all boilers, generators and the diesel fire pump containing a 12 month rolling summation of SOx emissions. SOx emissions estimates will be tracked consistent with the calculations provided in the Notice of Construction Application. The report shall be maintained on file and made available upon inspection.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **7/8/2002**

Condition:	Within 180-days of achieving the optimized feed rate of simulant at which the facilities will be operated, the permittee shall demonstrate initial compliance through a performance demonstration conducted per an Ecology approved Performance Demonstration Plan. Ecology shall be notified at least 30 days prior to the test and invited to participate in the test activities at least one week prior to testing.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	1. Notification Documentation. 2. Performance Demonstration Plan.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point **P-WTP-001**
200E Area, Vitrification
Requirement Citation (WAC or Order DE02NWP-002

Condition Approval **7/8/2002**

Condition:	Testing shall be conducted according to the following methods, unless an alternate method has been proposed in writing by the permittee and approved by Ecology in writing in advance of the testing. Carbon Monoxide - EPA Reference Method 10, 40 CFR 60, Appendix A, 7/1/00 Nitrogen Oxides - EPA Reference Method 7E, 40 CFR 60, Appendix A, 7/1/00 Particulate Matter - EPA Reference Methods 1 through 5, 40 CFR 60, Appendix A, 7/1/00. Volatile Organic Compounds (VOC) - EPA Reference Method 18, 40 CFR 60, Appendix A, 7/1/00 Sulfur Dioxide - EPA Reference Method 6C, 40 CFR 60, Appendix A, 7/1/00.
Periodic	Recordkeeping, measurements, and emission calculations.
Test Method:	As stated in condition.
Test Frequency:	Initial startup and annually thereafter.
Required Records:	Test Records.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval **7/8/2002**

Condition:	Emissions from boilers and generators shall be monitored for NOx, CO, and Oxygen by means of a portable emissions analyzer (direct-reading measurement device) at initial startup and after routinely scheduled maintenance activities and burner/control adjustments such as fuel/air metering ratio control and oxygen trim control. During the source testing for boilers and generators, a direct-reading measurement device for carbon monoxide and nitrogen oxides with a minimum measurement accuracy of five percent or less shall take readings according to methods proposed by the permittee and approved by Ecology in writing in advance of the testing. The direct-reading instrument shall be calibrated for future use using the results of the source testing.
Periodic	Recordkeeping, measurements, and emission calculations.
Test Method:	Portable emissions analyzer calibrated during most recent source test.
Test Frequency:	Initial startup and annually thereafter.
Required Records:	Logs of boiler tune-ups and significant boiler maintenance activities will be maintained.
State-Only	Yes.
Calculation Model	Not applicable.

Discharge Point **P-WTP-001**
200E Area, Vitrification
Requirement Citation (WAC or Order DE02NWP-002
Condition Approval **7/8/2002**

Condition:	Opacity from other facility combustion stacks shall not exceed 10 percent, over a 6 minute average as measured by EPA Reference Method 9, or an equivalent method approved in advance by Ecology. A certified opacity reader shall read and record the opacity concurrent with any
Periodic	See Section 2.1, Tier 1.
Test Method:	EPA Reference Method 9.
Test Frequency:	At least once per calendar quarter.
Required Records:	Test Records.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point S-296S021-001

200W Area, Hot Cell Expansion

Requirement Citation (WAC or Order Letter - 7/13/92

Condition Approval 7/13/1992

Condition:	Any toxic air release must be below detection limits.
Periodic	No monitoring required beyond initial test.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	None.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point W-PORTEX 020, 024, and 025

200 Area, Tank Farms - Use of a Portable Exhauster During Saltwell Pumping

Requirement Citation (WAC or Order DE98NWP-006

Condition Approval 10/26/1998

Condition:	The portable exhausters and other operations associated with salt well pumping activities will be permitted without additional control technology controls provided that the total emissions from all activities will not result in exceedance of WAC 173-460 ASILs and the proposed ASIL values for N-Nitrosomorpholine and nonchlorinated furans.
Periodic	Analyze total emissions to determine if an ASIL will be exceeded. Frequency: Annually.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 10/26/1998

Condition:	A new NOC will be required if total emissions of toxic air pollutants (from the saltwell portable exhauster) exceed the Small Quantity Emission Rates, unless dispersion modeling demonstrates that emissions would continue to result in concentrations less than the ASILs. Results of any such dispersion modeling demonstrations/calculations will be maintained on file at the tank farms
Periodic	Analyze total emissions to determine if a SQER will be exceeded. Frequency: Not applicable (conservative worst case calculations were performed in the original NOC application).
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Results of analyses.
State-Only	Yes.
Calculation Model	Not applicable.

Condition Approval 10/26/1998

Condition:	Notification will made one week prior to initial start-up of activities covered by this order.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Notification documentation.
State-Only	No.
Calculation Model	Not applicable.

Discharge Point W-PORTEX 020, 024, and 025

200 Area, Tank Farms - Use of a Portable Exhauster During Saltwell Pumping

Requirement Citation (WAC or Order DE98NWP-006

Condition Approval 10/26/1998

Condition:	An updated schedule of salt-well pumping activities will be available upon request.
Periodic	Recordkeeping.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Up-to-date schedule of salt-well pumping activities.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 10/26/1998

Condition:	VOCs are not to exceed 50 ppm carbon.
Periodic	No stack sampling is required. Instruments used to detect fugitive organic emissions are part of Hanford's Industrial Hygiene worker monitoring program will be used to monitor for VOCs a minimum of 3 times: once before exhauster operation begins, once during exhauster operation, and once after exhauster operation is completed.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	Records of VOC sample results.
State-Only	No.
Calculation Model	Not applicable.

Condition Approval 10/26/1998

Condition:	Any modification to any equipment or operating procedures, contrary to information in the NOC application, shall be reported to Ecology at least 60 days before such modification. Such modification may require a new or amended NOC approval Order.
Periodic	Not applicable.
Test Method:	Not specified.
Test Frequency:	Not applicable.
Required Records:	
State-Only	
Calculation Model	Not applicable.

Discharge Point W-PORTEX 020, 024, and 025

200 Area, Tank Farms - Use of a Portable Exhauster During Saltwell Pumping

Requirement Citation (WAC or Order DE98NWP-006

Condition Approval 10/26/1998

Condition:	Visible Emissions - No visible emissions shall be allowed beyond the property line as determined by opacity readings when warranted.
Periodic	See Section 2.1, Tier 3.
Test Method:	EPA Method 9.
Test Frequency:	Not applicable.
Required Records:	
State-Only	No.
Calculation Model	Not applicable.

This page intentionally left blank.

1.4.5 Miscellaneous Emission Units

Table 1.7. Miscellaneous Emission Units.

Discharge point number	Requirement citation	Regulatory requirement, emission limit, or work practice standard
Hanford Site Asbestos Landfill	40 CFR 61.151(a)	(1) Either discharge no visible emissions to the outside air from an inactive waste disposal site subject to this paragraph; or (2) Cover the asbestos-containing waste material with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, and grow and maintain a cover of vegetation on the area adequate to prevent exposure of the asbestos-containing waste material. In desert areas where vegetation would be difficult to maintain, at least 8 additional centimeters (3 inches) of well-graded, nonasbestos crushed rock may be placed on top of the final cover instead of vegetation and maintained to prevent emissions; or (3) Cover asbestos-containing waste with at least 60 centimeter of compacted nonasbestos-containing material, and maintain to prevent exposure.
	40 CFR 61.151(d)	Notify in writing at least 45 days prior to excavation. If construction will begin on a date other than the one in the original notice, notice of the new date must be provided at least 10 working days in advance. (1) Notice shall contain starting and completion dates. (2) Notice shall contain reason for disturbing the waste. (3) Notice shall contain procedures to be used to control emissions (4) Notice shall contain a location for any temporary storage site and the final disposal site.
	WAC 173-400-040(1)	Permittee is considered to be in compliance if no complaints are forwarded or generated by Ecology.
	WAC 173-400-040(6)	Monitor per Section 2.7, Tier 2.
600 Area Gas Distribution	WAC 173-491-040(4)(b)	All gasoline storage tanks shall be equipped with submerged or bottom fill lines and fittings to vapor balance gasoline vapors with the delivery transport tank.
	WAC 173-491-040(4)(d)	The owner or operator shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings from a transport tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily.
	WAC 173-491-040(6)(d)	Recordkeeping.
	WAC 173-400-040(1)	Permittee is considered to be in compliance if no complaints are forwarded or generated by Ecology.
	WAC 173-400-040(6)	Monitor per Section 2.7, Tier 2.

283-W Water Treatment Plant (Chlorine Tank)	40 CFR 68.190(b)(3)	Evaluate 283-W for compliance with newly regulated substances above the threshold (revise Risk Management Plan if needed).
	40 CFR 68.190(b)(7)	Evaluate 283-W for change in Program Level within 6 months after any change.
	40 CFR 68.190(c)	Evaluate 283-W for applicability of 40 CFR 68.
	40 CFR 68.190(b)(6)	Evaluate 283-W for change that requires a revised consequence analysis.
	40 CFR 68.95(a)	Confirm that the required emergency response program has been developed and implemented.
	40 CFR 68.95(a)(4)	Confirm that the required procedures are in place to review and update the emergency response plan to reflect changes at the stationery source.
	40 CFR 68.12(b)(3)	Confirm that emergency response actions have been coordinated with local emergency planning and response agencies.
	40 CFR 68.39(a) to (e)	Confirm that records are being maintained for the offsite consequence analysis.
	WAC 173-400-040(1)	Permittee is considered to be in compliance if no complaints are forwarded or generated by Ecology.
	WAC 173-400-040(6)	Monitor per Section 2.7, Tier 2.

2.0 COMPLIANCE AND PERIODIC MONITORING PROVISIONS

Compliance and periodic monitoring provisions are provided in the following sections.

2.1 VISIBLE EMISSION SURVEYS

Visible emission surveys must be conducted during daylight hours and during periods when the emission unit is operating.

Tier 1

This method applies primarily to fossil-fuel combustion units and other emission units that might be a source of visible emissions. The method consists of operating personnel observing visible emissions from the emission unit according to the frequency identified in the table. If the operator observes visible emissions for more than 10 consecutive minutes during the observation period, the cause(s) of the visible emissions will be determined and corrective actions taken as necessary, or a visible determination of opacity will be performed using EPA Method 9. Records of corrective actions taken to reduce opacity shall be maintained and available for Ecology inspection. Visible emission surveys are to be conducted during daylight hours, after the unit has reached normal operating temperature and revolutions per minute, or 15 minutes after startup.

Provided the emissions observed during the Method 9 test were representative of normal operations and the Method 9 test shows the emission unit is compliant, no further observations are required until the next required periodic monitoring. Records of corrective actions taken to reduce opacity shall be maintained and available for Ecology inspection.

If after corrective actions have been taken and results from the Method 9 indicate visible emissions in excess of the limit, a deviation report will be filed with Ecology as required by Section 4.5.

Tier 2

Some emission units are unlikely sources of visible emissions and are not expected to exceed applicable opacity limit based on past operating experience and/or expected process behavior. These emission units include research and development laboratories, analytical laboratories, and small natural gas-fired boilers. For these emission units, a surveillance will be conducted and the results recorded. If visible emissions from one of these emission units are observed for more than 10 consecutive minutes, an attempt to identify the cause(s) of the visible emissions will be made and those results recorded. The recorded entry also will identify any corrective actions taken and the likely frequency of a future reoccurrence. If the event is likely to be re-occurring, and can not be demonstrated to consist of water vapor, a determination of opacity will be made using EPA Method 9. The frequency of the visible emission surveys shall be as required in the table unless the following procedure has been completed satisfactorily. Where no frequency is specified, visible emission surveys will be performed once per year.

The procedure for reducing visible emission survey frequencies is as follows.

If weekly visible emission surveys for 3 months are negative, quarterly measurements will be taken for the next 6 months. After 9 months of no visible emissions, visible emission surveys will be performed only when visible emissions are observed or expected (e.g., during startup, shutdown, or periods of malfunction). Visible emission surveys during these periods will be conducted for nonradionuclide-emitting stacks according to the process described in Tier 2.

Tier 3

Maintain abatement control technology as required in Attachment 2, Tables 1.1, 1.2 and 2.1, for that particular emission unit.

2.2 GENERAL STANDARDS COMPLAINT INVESTIGATIONS

Complaints forwarded by Ecology shall be addressed promptly and assessed for corrective action. An initial informal response shall be made to Ecology within 30 working days of the Permittee receiving the complaint. This initial response shall document preliminary investigation results and any planned or completed corrective actions. Follow-up report(s) shall be provided as directed by Ecology. The Permittee shall maintain records of complaints forwarded by Ecology.

2.3 MEASURES TO CONTROL FUGITIVE EMISSIONS AND FUGITIVE DUST

All construction projects will address fugitive emissions and fugitive dust control during prejob planning and job safety analysis. Measures to control fugitive emissions and fugitive dust may include but are not limited to:

1. Watering
2. Use of chemical stabilizers
3. Use of physical barriers and/or physical stabilization
4. Use of vegetative stabilization
5. Clearing only limited areas to reduce dust generation
6. Covering haul vehicles
7. Minimizing track-out
8. Controlling site traffic to decrease disturbance of soil and vegetation to decrease dust generated from unnecessary vehicular travel.

2.4 RACT

Emission standards and other requirements contained in rules or regulatory orders in effect at the effective date of this permit or subsequent renewals shall be considered RACT for purposes of permit issuance or renewal. RACT determinations made subsequent to the effective date of permit issuance or renewal shall be incorporated into this permit as provided by WAC 173-401-730. [WAC 173-401-605(3)].

2.5 RECORDKEEPING

DOE and the contractor shall maintain appropriate monthly records of the fuel use on each individual boiler. These data, along with the emission factors presented in Ecology Regulatory

Order 97NM-138, will be used to determine monthly emission levels for individual boilers, and collectively for the 200 East, 200 West, and 300 Area. If Ecology or the Permittee determines that emission factors different than the factors specified in Regulatory Order 97NM-138 are appropriate, the public will be provided with an opportunity for review. WAC 173-400-115 compliance with the standard may be determine based on a certification from the fuel supplier containing the name of the oil supplier and a statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 CFR 60.41b. An annual report including records of fuel supplier certifications and a certification by the owner or operator that the records of fuel supplier certifications submitted represent all of the fuel combusted during the year. Logs of boiler tuneups and significant boiler maintenance activities will be kept.

2.6 STEAM GENERATING UNITS SOURCE TESTS

All source tests for these boilers will be conducted using EPA and Ecology approved procedures with the test boilers operating at full capacity. Tests are to be conducted on a maximum of five boilers selected on the basis of boiler capacity and fuel type. The procedure for selecting the test boilers will be agreed to by Ecology and DOE before conducting the tests. A procedure for selecting a representative subset of boilers for testing once every 5 years will be developed before the initial 5 year follow-up test. The public will be provided an opportunity for review of the procedure as part of an AOP modification or renewal.

The following list is an inventory of the larger boilers that are subject to testing (maximum of 5 boilers):

Distillate oil-fired boilers	Number of units
200 BHP	5
350 BHP	3
700 BHP	2

Natural gas-fired boilers	Number of units
200 BHP	2
300 BHP	4

2.7 SO_2 EMISSIONS COMPLIANCE

Tier 1: Fuel-Oil Fired Combustion Units:

Required records	Calculation model (Section 3.1)
1. Fuel burned 2. Vendor documentation or fuel analysis once per year.	Model 1

Tier 2: Other Significant Emission Units:

Ecology has determined, based on process knowledge, that these emission units do not emit significant levels of SO_2. The Permittee annually shall certify that the processes have not been modified to increase SO_2 emissions and no SO_2 monitoring is required.

2.8 VISIBLE EMISSIONS ENFORCEABILITY

WAC 173-400-040(1)(a) and (1)(b) are federally enforceable sections. Soot blowing and grate cleaning are allowed if the operator can demonstrate that the emissions will not exceed 20% opacity for more than 15 minutes in any 8 consecutive hours.

2.9 SO_2 ENFORCEABILITY

WAC 173-400-040(6)¶1 is enforceable federally.

3.0 RECORDKEEPING

The Permittee shall maintain records of all required monitoring data and support information. These records shall be maintained for a 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, all original continuous monitoring records (such as strip charts or equivalent), and required reports. Most of these records are retained on-site in electronic format. Regulatory agencies accept electronic records as supporting information.
[WAC 173-401-615(2)(a), WAC 173-401-615(2)(c)]

3.1 EMISSION CALCULATIONS

The following section contains emission calculations for SO_2, nitrogen oxides, volatile organic compounds, ammonia, gas cylinders, chemical inventory, air concentrations, and TAPs.

3.1.1 MODEL 1 Description: Compliance with 1000 ppm SO_2 @7% O_2 Internal Combustion Engines >500 hp SO_2 Emission Calculations

Stoichiometric calculations were done to show emissions for a specific diesel engine (2200 HP, with fuel consumption rate of 99.4 gal/hr) were well below the 1000 ppm SO_2 standard.

theoretical air required (ft^3/lb) = 1710 * (C/12+ H/2 + S/32)

multiply this by fuel consumption rate * fuel density to get ft^3/min

Assumptions: diesel fuel is predominantly $C_{16}H_{24}$

Fuel density = 7.107 lb/gal

Heat content diesel = 140000 BTU/gal

S concentration of 0.5%

AP-42 emission factors for large IC engines

CO = 0.81 lb/mmBTU

CO_2 = 165 lb/mmBTU

TOC (as CH_4) = 0.9 lb/mmBTU

NO_x (as NO_2) = 3.1 lb/mmBTU

Assuming complete combustion of the fuel, emissions were shown in the calculations below to be less than 250 ppm SO_2 at 7% O_2. Calculations were also done varying the fuel consumption rate. Since the theoretical air required was proportional to the fuel consumption rate, theoretical SO_2 emissions were independent of engine size or fuel consumption rate. Actual SO_2 emissions would be diluted by excess air.

Therefore, as a class, these engines cannot exceed the general standard when using fuel with S concentration < 0.5%.

Stoichiometric Calculations to Estimate SO2 Emissions Normalized to 7% O2 From Combustion of Diesel #2 Fuel Oil using AP-42 Factors For Large Internal Combustion Engines (> 500 HP)

Assumptions: Diesel #2 Fuel Oil (C16H24), 0.5wt% Sulfur; Heat Content = 140000 BTU/gal;
Case 1: 2200 HP IC Engine; Fuel consumption rate = 99.4 gal/hr.

$MW_C := 12.01115\frac{gm}{mole}$ $MW_O := 15.9994\frac{gm}{mole}$ $MW_H := 1.0079\frac{gm}{mole}$

$MW_S := 32.064\frac{gm}{mole}$ $MW_N := 14.0067\frac{gm}{mole}$ $P := 1 \cdot atm$ $MM := 1 \cdot 10^6$

$MW_{fuel} := 16 \cdot MW_C + 24 \cdot MW_H$ $MW_{fuel} = 216.36\frac{gm}{mole}$

$MW_{SO2} := MW_S + 2 \cdot MW_O$ $MW_{SO2} = 64.063\frac{gm}{mole}$

$MW_{Air} := 2 \cdot (.21 \cdot MW_O + .79 \cdot MW_N)$ $MW_{Air} = 28.85\frac{gm}{mole}$

$MW_{CO} := MW_C + MW_O$ $MW_{CO} = 28.011\frac{gm}{mole}$

$MW_{CO2} := MW_C + 2 \cdot MW_O$ $MW_{CO2} = 44.01\frac{gm}{mole}$

$MW_{CH4} := MW_C + 4 \cdot MW_H$ $MW_{CH4} = 16.043\frac{gm}{mole}$

$MW_{NO2} := MW_N + 2MW_O$ $MW_{NO2} = 44.013\frac{gm}{mole}$

$S_f := 0.005$ $C_f := 16 \cdot \frac{MW_C}{MW_{fuel}}$ $H_f := 24 \cdot \frac{MW_H}{MW_{fuel}}$

$V_{th\_air} := \left[1710 \cdot \left(\frac{C_f}{12} + \frac{H_f}{2} + \frac{S_f}{32}\right)\right]\frac{ft^3}{lb}$ $V_{th\_air} = 222.424\frac{ft^3}{lb}$

$V_{fuel} := 99.4 \cdot \frac{gal}{hr}$ $T_{SC} := 527.67 \cdot R$ $T_{SC} = 293.15 K$

$SO2_{conc} := \frac{71 \cdot lb}{1000 \cdot gal}$ $R_{gas} := \frac{P \cdot 22.4 \cdot liter}{mole \cdot T_{SC}}$ $R_{gas} = 0.076\frac{liter \cdot atm}{mole \cdot K}$

$S_{fuel} := SO2_{conc} \cdot \frac{MW_S}{MW_{SO2}}$ $S_{fuel} = 0.036\frac{lb}{gal}$

$\rho_{fuel} := \frac{S_{fuel}}{.005}$ $\rho_{fuel} = 7.107 \cdot \frac{lb}{gal}$

$Fuel := \frac{V_{fuel} \cdot \rho_{fuel}}{MW_{fuel}}$ $Fuel = 1.481 \cdot 10^{3} \cdot \frac{mole}{hr}$

$S := \frac{V_{fuel} \cdot S_{fuel}}{MW_{S}}$ $S = 49.969 \cdot \frac{mole}{hr}$ $SO2 := S$ $SO2 = 49.969 \cdot \frac{mole}{hr}$

$V_{air} := V_{th\_air} \cdot \rho_{fuel} \cdot V_{fuel}$ $V_{air} = 2.619 \cdot 10^{3} \cdot \frac{ft^3}{min}$

Heat of combustion of fuel reported at 140,000 BTU/gal; however, based on AP-42 factors, results in using more fuel than what was supplied based on the stoichiometry for the combustion of fuel. By trial and error, adjusted the heat of combustion of the fuel so that the remaining amount of uncombusted carbon was essentially "zero."

$H_{c\_fuel} := 138903.34 \frac{BTU}{gal}$ $H_{c\_total} := H_{c\_fuel} \cdot V_{fuel}$ $H_{c\_total} = 1.381 \cdot 10^{7} \cdot \frac{BTU}{hr}$

$CO_{produced} := H_{c\_total} \cdot .81 \cdot \frac{lb}{MM \cdot BTU}$ $CO_{produced} = 11.184 \cdot \frac{lb}{hr}$

$CO := \frac{CO_{produced}}{MW_{CO}}$ $CO = 181.104 \cdot \frac{mole}{hr}$

$CO2_{produced} := H_{c\_total} \cdot 165 \cdot \frac{lb}{MM \cdot BTU}$ $CO2_{produced} = 2.278 \cdot 10^{3} \cdot \frac{lb}{hr}$

$CO2 := \frac{CO2_{produced}}{MW_{CO2}}$ $CO2 = 2.348 \cdot 10^{4} \cdot \frac{mole}{hr}$

$CH4_{produced} := H_{c\_total} \cdot .09 \cdot \frac{lb}{MM \cdot BTU}$ $CH4_{produced} = 1.243 \cdot \frac{lb}{hr}$

$CH4 := \frac{CH4_{produced}}{MW_{CH4}}$ $CH4 = 35.134 \cdot \frac{mole}{hr}$

$NO2_{produced} := H_{c\_total} \cdot 3.1 \cdot \frac{lb}{MM \cdot BTU}$ $NO2_{produced} = 42.802 \cdot \frac{lb}{hr}$

$NO2 := \frac{NO2_{produced}}{MW_{NO2}}$ $NO2 = 441.111 \cdot \frac{mole}{hr}$

$$H2O := \frac{24 \cdot Fuel - 4 \cdot CH4}{2} \qquad H2O = 1.77 \cdot 10^{4} \ \frac{mole}{hr}$$

$$Air_{actual} := \frac{P \cdot V_{air}}{R_{gas} \cdot T_{SC}} \qquad Air_{actual} = 1.986 \cdot 10^{5} \ \frac{mole}{hr}$$

$$O_{actual} := 2 \cdot .21 \cdot Air_{actual} \qquad O_{actual} = 8.343 \cdot 10^{4} \ \frac{mole}{hr}$$

$$N_{actual} := 2 \cdot .79 \cdot Air_{actual} \qquad N_{actual} = 3.138 \cdot 10^{5} \ \frac{mole}{hr}$$

$$O_{remaining} := O_{actual} - 2 \cdot SO2 - NO2 - 2 \cdot CO2 - CO - H2O \qquad O_{remaining} = 1.804 \cdot 10^{4} \ \frac{mole}{hr}$$

$$O_{2\_remaining} := \frac{O_{remaining}}{2} \qquad O_{2\_remaining} = 9.022 \cdot 10^{3} \ \frac{mole}{hr}$$

$$N_{remaining} := N_{actual} - NO2 \qquad N_{remaining} = 3.134 \cdot 10^{5} \ \frac{mole}{hr}$$

$$N_{2\_remaining} := \frac{N_{remaining}}{2} \qquad N_{2\_remaining} = 1.567 \cdot 10^{5} \ \frac{mole}{hr}$$

Verification that remaining carbon is essentiallly "zero".

$$C_{remaining} := 16 \cdot Fuel - CO - CO2 - CH4 \qquad C_{remaining} = 3.781 \cdot 10^{-4} \ \frac{mole}{hr}$$

Recalling that Mole % = Volume % (for gasses only) one can easily calculate the volume % of the constituents in the exiting gas stream.

$$Moles_{total} := O_{2\_remaining} + N_{2\_remaining} + CO + CO2 + SO2 + NO2 + CH4 + H2O$$

$$Moles_{total} = 2.076 \cdot 10^{5} \ \frac{mole}{hr}$$

Gas calculations are to be done on a dry basis; therefore, need to subtract out the water contribution.

$$Moles_{total\_dry} := Moles_{total} - H2O \qquad Moles_{total\_dry} = 1.899 \cdot 10^{5} \ \frac{mole}{hr}$$

$$O2\% := \frac{\left(O_{2\_remaining} \cdot 100\right)}{Moles_{total\_dry}} \qquad O2\% = 4.751$$

$$N2\% := \frac{\left(N_{2\_remaining} \cdot 100\right)}{Moles_{total\_dry}} \qquad N2\% = 82.513$$

$$CH4\% := \frac{CH4 \cdot 100}{Moles_{total\_dry}} \qquad CH4\% = 0.019$$

$$SO2\% := \frac{SO2 \cdot 100}{Moles_{total\_dry}} \qquad SO2\% = 0.026$$

$$NO2\% := \frac{NO2 \cdot 100}{Moles_{total\_dry}} \qquad NO2\% = 0.232$$

$$CO\% := \frac{CO \cdot 100}{Moles_{total\_dry}} \qquad CO\% = 0.095$$

$$CO2\% := \frac{CO2 \cdot 100}{Moles_{total\_dry}} \qquad CO2\% = 12.364$$

Check to see if sum equals 100%

$$SUM_{dry} := O2\% + N2\% + CH4\% + SO2\% + NO2\% + CO\% + CO2\% \qquad SUM_{dry} = 100$$

$$ppm := \frac{1}{1000000} \qquad SO2_{7\%O2} := SO2\% \cdot \left(\frac{14}{21 - O2\%}\right) \qquad SO2_{7\%O2} = 0.023$$

Since SO2 concentration is already in % divide by 100 to express in ppm

$$SO2_{7\%O2} := \frac{SO2_{7\%O2}}{100} \qquad SO2_{7\%O2} = 226.694 \cdot ppm$$

3.1.2 MODEL 2 Nitrogen Oxides Emission Calculations

MODEL 2B (Engine W) Description: Compliance with 75.5 lbs/hr NO_x (Engine E) or 42 lbs/hr NO_x

$$ER = F * AP_{42} * CF$$

where: ER = Emission rate for NO_x in lbs/hr

F = Diesel burn rate (gal/hr)

AP_{42} = AP-42 factor (3.1 lbs/mmBTU)

CF = 0.139 mmBTU/gal

Assumptions: heat of combustion for diesel #2 oil = 140,000 BTU/gal
F = 104.7 gal/hr (Engine E, 2200 hp), manufacturer's specification
F = 90.8 gal/hr (Engine W, 1850 hp), manufacturer's specification
ER (Engine E) = 45.1 lbs/hr
ER (Engine W) = 39.1 lbs/hr

Fuel used divided by hours logged will demonstrate the average fuel consumption rate is below manufacturer's specification

Engine E will be in continuous compliance with the NO_x emission limit of 75.5 lbs/hr

Engine W will be in continuous compliance with the NO_x emission limit of 42 lbs/hr

3.1.3 MODEL 4 Volatile Organic Compounds Emission Calculations

MODEL 4A Description: Compliance with 50 ppm and 500 ppm VOC

Assumptions: A Total Organic Carbon Analyzer or similar instrument will be used to determine VOC concentrations in the stack effluent using EPA method 25A or an approved alternative. The VOC concentration will be determined in accordance with the frequency identified in the tables.

MODEL 4B Description: Compliance with 0.8 lbs VOC emitted in any hour

VOC emission rate in lbs/hr $= 10 \times [\sum_{i=1 \text{ to } 3} (U_i * RF_i)]$

Where i=1 for organic gases
i=2 for volatile organic vapors/liquids
i=3 for organic liquids

U_i = Maximum Annual Average Hourly Usage Rate (lb/hr) =
(Maximum annual usage, lbs/yr)/(8760 hrs/yr)

RFi = Release fractions
$RF_1 = 1$ for organic gases
$RF_2 = 0.1$ for volatile organic vapors/liquids
$RF_3 = 10^{-3}$ for organic liquids

Assumptions:
Maximum emission rate in any hour is 10 times the maximum annual average hourly emissions, as stated in NOC approval condition 2.
If usage is not available, U may be estimated by assuming the inventory is used in a year.

3.1.4 MODEL 5 Ammonia Emission Calculations

Description: Compliance with 0.05 lbs/hr NH_3

$$ER = C * Sf * CF$$

where: ER = Emission rate for NH_3 in lbs/hr

C = Concentration of NH_3 in ppm

S_f = Stack flow (Vent & Balance measurements)

CF = 2.20 E-6 * 1.70 * 0.71 = 2.66 E-6 lb / (ppm*cfm*hr)

conversion from mg to lbs, m^3/hr to cfm, ppm NH_3 to mg/m^3

Assumptions:

(1) Stack exhausts at ambient temperature
(2) Vent & Balance measurements for average stack flow
(3) Draeger tube measurement for NH_3 (minimum of one per year) during operations will demonstrate NH_3 levels are below the threshold which would be equal to 0.05 lbs/hr
(4) If measurements during peak activities are below threshold, continuous compliance is assumed. For example, at 800 cfm, the concentration of NH_3 must be below 23.5 ppm.

3.1.5 MODEL 6 Emissions from 305 B Gas Cylinder Management Process (GCMP)

GCMP emissions will be determined by recording the daily volume and concentration emitted for each cylinder. The volumes and concentrations will be based on the known and recorded pressures and concentrations in the cylinders, or upper-bounding estimates if unknown.

3.1.6 MODEL 7A – Emissions from Use of Chemical Inventory

Emissions:

Emissions from the use of the chemical inventory in the building will be determined as follows:

Use rate x release fraction x (1-control efficiency).

In addition to chemical use rate, chemical inventory data may be used to estimate emissions. If the inventory information is used, the annual ASILs will be determined assuming the entire inventory is released in a year, and the 24-hour ASILs will be determined assuming the entire inventory is released during 20 days. The above methods and assumptions may be modified with Ecology's concurrence.

3.1.7 MODEL 7B – Air Concentrations for Comparison to ASILs

Total Building Emissions:

Calculate a building's total emissions by summing those due to the use of chemical inventory from Model A and those from additional processes in the building whose emissions are not included in Model A.

Total Building Ambient Air Concentrations

Calculate the air concentrations at the nearest points of unrestricted or uncontrolled public access to the building using the EPA T-Screen or ISCST3 dispersion models and compare them to the ASILs.

3.1.8 MODEL 7C – Emission Calculations for LERF/ETF

Air Emission Concentrations for Comparison to ASILs and SQER

1. Emission concentrations (to compare to ASIL):

$$AC_i = TR_i * FC_i$$

AC_i : air concentration of species i, ug/m^3
TR_i : transfer rate of species i, unitless
FC_i : feed concentration of species i, ug/m^3

Transfer rates vary depending on the species. For acids, bases, and salts, a TR of 1E-12 is given in DOE/RL-92-69. For other species it can be calculated using a variation of Raoult's Law:

$$TR_I = \left[\frac{1/MW_I}{DENSITY_I/MW_I} \right] * \left(\frac{VP_I}{760} \right) * \left[\frac{273/(T + 273)}{22.4} \right] * MW_I$$

TR_i : transfer rate of species i, unitless
MW_i : molecular weight of species i, kg/kgmol
$DENSITY_i$: density of pure liquid species, kg/m^3
VP_i : vapor pressure of pure liquid species i at temperature T, mmHg
T : temperature, ^oC
Other values are conversion factors

Typical transfer rates: acetone = 1E-03
carbon tetrachloride = 1E-03
butanol = 1E-04
TBP = 1E-05

2. Hourly emission rate (to compare to SQER):

$$ERH_i = AC_i * FLOW * 0.02832 * 2.205 * 60 / 1{,}000{,}000$$

ERH_i : hourly emission rate of species i, lb/hr
AC_i : air concentration of species i, ug/m^3
FLOW : ETF vessel off-gas flowrate = 27,250 ft^3/min
Other values are conversion factors

3. Annual emission rate (to compare to SQER):

$$ERY_i = ERH_i * 24 * 365$$

ERY_i = annual emission rate of species i, lb/yr
Other values are conversion factors.

3.1.9 MODEL 10A Rotary Mode Core Sampling: Emission Estimates for Ammonia

Ammonia emissions - vapor composition analysis:

A sample of the vapor space analysis for each passively ventilated tank scheduled for rotary mode core sampling will be obtained as part of the preoperational steps.

Conversion of vapor space sample from parts per million (ppm) by volume to mg/m^3:

$[NH_3(ppm) \times (\text{gram molecular wt.})] / 24.45 = NH_3\ (mg/m^3)$

Conversion of vapor space sample from mg/m^3 to pounds per hour at 5.7 m^3/min:

$[NH_3\ (mg/m^3)] \times (339.8\ m^3/hr) \times (lb / 453{,}593\ mg) = NH_3\ (lb / hr)$

Conversion of vapor space sample from mg/m^3 to pounds per hour at 5.7 m^3/min:

$[NH_3\ (mg/m^3)] \times (339.8\ m^3/hr) \times (lb / 453{,}593\ mg) = NH_3\ (lb / yr)$

Where operating time = 672 hr /6 mo

Note: the vapor space sampling data comes from the TWINS database

3.1.10 MODEL 10B Rotary Mode Core Sampling: Emission Estimates for Class A and Class B TAPs

Class A and Class B TAP emissions - vapor composition analysis:

A sample of the vapor space analysis for each passively ventilated tank scheduled for rotary mode core sampling will be obtained as part of the preoperational steps.

Conversion of vapor space sample from parts per million (ppm) by volume to mg/m^3:

[TAP(ppm) x (gram molecular wt.)] / 24.45 = TAP (mg/m^3)

Conversion of vapor space sample from mg/m^3 to pounds per hour at 5.7 m^3/min:

[TAP (mg/m^3)] x (339.8 m^3/hr) x (lb / 453,593 mg) = TAP (lb / hr)

Conversion of vapor space sample from mg/m^3 to pounds per hour at 5.7 m^3/min:

[TAP (mg/m^3)] x (339.8 m^3/hr) x (lb / 453,593 mg) = TAP (lb / yr)

Where operating time = 672 hr /6 mo
TAP = individual Class A or Class B TAP

Note: the vapor space sampling data comes from the TWINS database

3.1.11 MODEL 10C Description: VOC Emissions on a Daily Average

Compliance with NSR VOC emission limit on a daily average:

[2 ton (2000 lb/ton)]/365 = 24[(VOC mg/m^3) x (339.8 m^3/hr) x (lb / 453,593 mg) = VOC (lb/day)

Where:

2 tons/year = WAC 174-400-110 NSR threshold for VOCs
1 year = 365 days
1 day = 24 hours
339.8 m^3/hr = volumetric flow rate
1 lb = 453,593 mg
VOC mg/m^3 = vapor space sampling data from the TWINs database